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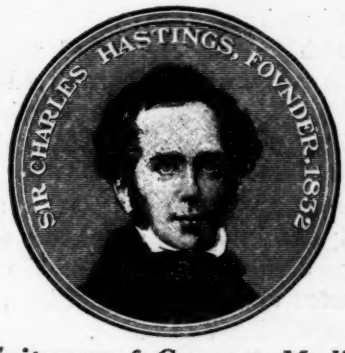

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A British Medical Association Lecture

ON

RECENT ADVANCES IN THE PHYSIOLOGY OF MENSTRUATION.*

BY

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In many countries, particularly France and America, there is grave danger of gynaecology becoming merged in general surgery. Emil Novak, who is fighting a magnificent battle for the autonomy of gynaecology, says, that so long as gynaecology is regarded as embracing also a knowledge of the special anatomy, physiology, and pathology of the female reproductive organs, it will constitute an effective breakwater against the invasion of general surgery. No gynaecologist to-day can consider himself thoroughly equipped unless he is well grounded in these fundamentals. This is particularly true of the physiological aspect, which to-day represents the growing edge of our specialty. It is for this reason that I have chosen as my theme a consideration of the many problems connected with the human menstrual cycle.

Ever since Knaeur, by his transplantation experiments in 1899, showed that the ovarian influence responsible for menstruation is exerted through the blood stream and not through the nervous system, the problem of menstruation has been the subject of extensive investigation. Within the past ten or twelve years the amount of experimental work that has been done on the internal secretions of the ovaries has been stupendous, and, although the results arrived at by different observers have been at times conflicting, none the less, in spite of disagreements here and there, a number of most interesting conclusions have been arrived at in accordance with the strictest rules of inductive logic. In order that we may appreciate the problems connected with menstruation, let me epitomize Novak's classical description of the sequence of events in the menstrual cycle.

The discharge of the ovum from the follicle occurs in the intermenstrual period, most probably about the fourteenth day of the cycle. To be sure, it may occur earlier or later than this date. As the ovum passes down to the uterus, the mucous membrane of the latter prepares for its reception. This preparation begins immediately after the preceding menstruation, for there is a gradual hypertrophic change from this time up to the beginning of the next period. At first this is very gradual, so that at the time the ovum is discharged from the ovary the endometrium is only slightly thicker and its glands are only moderately tortuous, with no sign as yet of secretory activity or decidual change. This phase of the menstrual cycle is called the interval or follicular phase. After the rupture of the Graafian follicle, the gland epithelium begins to show signs of secretory activity, though these are not pronounced until, perhaps, five or six days before the next period. This is the pre-menstrual phase. At the peak of the pre-menstrual phase decidua-like cells appear, which divide the endometrium into the superficial compact and the deep spongy layers.

These facts in regard to the menstrual process are well established. When, however, we come to spell out the proper significance of the facts described we are faced with one of the most fascinating yet difficult problems in physiology.

When I speak of the number of interesting findings that have been arrived at in regard to the internal secretions of the ovary I want to make it clear that, with the notable exception of the brilliant piece of histological work carried out by Novak and Wilfred Shaw on the human subject, these findings are largely the fruit of animal experimentation. Now unless the menstrual cycle resembles in its essentials the sexual cycle in the lower animals, we must be very cautious in transferring the results of animal experimentation to the interpretation of human phenomena.

What are the essential features of the sexual cycle in the lower animals?

During anoestrum, or the period of sexual tranquillity, the uterus is inactive, its glands are small and contracted, and the mucous membrane is anaemic. The ovaries, too, are inactive. With the advent of pro-oestrus or "coming on heat," there is a ripening of the follicles in the ovary. Coincidently with follicular activity, there is a gradual development of the endometrium. The glands, also, show evidence of secretory activity, and the mucous membrane is hyperaemic and succulent.

Pro-oestrus is followed by oestrus, during which, as a rule, ovulation takes place (in some species only after copulation) accompanied by further changes usually of a retrogressive character in the accessory organs. It is at this period only, in the lower animals, that the female will receive the male. Should fertilization not take place, the period of oestrus is immediately followed by pseudo-pregnancy. The essential feature of this stage is the presence of a menstrual decidua which is a miniature representation of the decidua of true pregnancy.

To Allen and Doisy of America we are indebted for the experimental proof that a hormone from the fluid of the growing Graafian follicle is responsible for the oestrous cycle in the lower animals. This hormone is called oestrin, or the oestrus-producing hormone.

To Corner, Allen, Parkes[1] and others we are indebted for the experimental proof that a special hormone manufactured by the luteal tissue of the corpus luteum is responsible for pseudo-pregnancy. Oestrin, or the oestrus-producing hormone, even though it may produce actual bleedings in castrated monkeys, is unable, however, to produce the pre-gravid endometrium. As relevant to the problem of human menstruation let me indicate a few interesting variations in the sexual cycle of the lower animals.

In a bitch at the height of pro-oestrus, haemorrhage appears externally. At the end of pseudo-pregnancy in the same animal haemorrhage occurs into the endometrium of the uterus, but does not appear externally. From the point of view of the oestrous cycle animals fall into two well-defined groups:

(*a*) The species in which the sexual season is associated with but one complete oestrous cycle—the monoestrous type.

(*b*) The species in which there is a recurrence of short oestrous cycles throughout the sexual season—the polyoestrous type.

In the lower animals, therefore, there are two distinct cycles, which come quite close to each other—the sexual or oestrous cycle and the reproductive cycle or the phase of pseudo-pregnancy. When we study the human menstrual cycle in the light of the sexual cycle in the lower animals we are at once struck by the fact that among the higher animals, like man and the monkey, the sexual cycle seems to have disappeared altogether, or if there are vestiges of it left they are difficult to decipher. It is this consideration that has led many clinicians to the view that the human menstrual cycle has only one phase—the reproductive phase or the phase of pseudo-pregnancy—and that the oestrous phase or cycle is completely missed out in the sequence of events that take place between one menstrual period and another. The pre-menstrual phase of the human menstrual cycle is, according to this view, designed to facilitate the implantation of the embryo, and thus corresponds to the luteal or pseudo-pregnant phase of lower mammals. Menstruation, therefore, represents the abortion of an unwanted decidua.

There is a good deal of evidence in support of this view so admirably put by Professor R. W. Johnstone in a paper published this year.[2] The pre-menstrual phase, like the pseudo-pregnant phase in the lower animals, begins after ovulation, and the breakdown of the endometrium, or menstruation, coincides with degenerative changes in the corpora lutea. Degeneration of pseudo-pregnant congestion, sometimes accompanied by bleeding, has been described in the rabbit by Hammond,[3] in the dog by Gerlinger,[4] and in the sow by Corner.[5] X-ray sterilization

* Read before the South-Eastern of Ireland Branch on June 14th, 1930.

stops the menstrual cycle in the human subject, whereas in the lower mammals such treatment blots out the luteal phase but not the follicular or oestrous phase. In spite of the plausibility of this view, it seems to me to conflict with the following well-established facts:

(*a*) That some humans and many monkeys have been known to menstruate without previous ovulation, and, therefore, without the presence of a pseudo-pregnant phase.

(*b*) That in the bitch bleeding takes place at the height of pro-oestrus as well as at the end of pseudo-pregnancy.

(*c*) Allen's[6] induction of menstruation in the monkey and Whitehouse's[7] induction in the human by the destruction of ripe Graafian follicles.

(*d*) Allen's induction of menstruation by the injection into ovariectomized monkeys of the oestrus-producing hormone.

From a consideration of these facts many experimentalists have been driven to Heape's original view that menstruation is identical with the pro-oestrous haemorrhage which takes place in such animals as the bitch, and that the menstrual decidua, which is the offspring of the activity of the corpus luteum, plays no part whatever in human menstruation. This view has been very clearly expressed by Carl G. Hartman.[8]

Although it is true that bleeding takes place in the bitch at the height of pro-oestrus, it is just as true that bleeding also takes place at the end of pseudo-pregnancy, not only in the bitch, but also in the rabbit and sow. Again, Heape's view cannot be reconciled with the well-known fact that menstruation in the human is invariably followed by degeneration of the corpus luteum or its surgical removal. We are led, therefore, to the view originally held by Marshall that in the human pro-oestrous development and the phase of pseudo-pregnancy coincide. On this view menstruation represents both pseudo-pregnant and pro-oestrous degeneration, telescoped, so to speak, into one. I am quite prepared to believe that the two cycles—the sexual and the reproductive—are originally and essentially separate. I would even submit that the monoestrous cycle is prior to the polyoestrous cycle. As animals become domesticated, and begin to live under more sheltered conditions, and as the chances of sexual congress become correspondingly less, the polyoestrous begins to replace the monoestrous cycle as the more certain method of fertilization. No sooner is one cycle finished than another begins. Nature enters upon a fresh adventure, in the hope that she will be more successful the next time. Now in the human subject, on account of evolutionary forces which we need not stop to consider, as the discharge of the ovum which originally took place, probably, at the height of pre-oestrus or commencing oestrus, began to take place on the slope, so to speak, Nature decreed that the sooner the bridal suite was prepared for the reception of the ovum after its discharge the better for the race. In this way, the pseudo-pregnant phase, instead of being a post-oestrous development, became fused with pro-oestrus. To my mind this theory is the most convincing that has yet been propounded. It harmonizes, not only with the workings of natural selection, but it *keeps strictly within the facts*.

Now this view of the pre-menstrual stage of the human menstrual cycle must soften to some extent the antagonism between the oestrus-producing hormone and the special hormone of the corpus luteum. In the lower animals experiments have proved that not only is the special hormone of the corpus luteum exclusively responsible for the development of the menstrual decidua and the sensitization of the uterus for the implantation of the embryo, but it also effectively inhibits the oestrous cycle and, therefore, ovulation. Now in the human menstrual cycle, although we are driven on clinical grounds to admit that the corpus luteum inhibits ovulation (for during the whole of pregnancy there is no ovulation), at the same time, if Marshall's view of menstruation is correct, we shall have to admit that the oestrus-producing hormone plays an essential part in the construction of the pre-menstrual phase of the human menstrual cycle, and that during the pre-menstrual phase both hormones instead of being antagonistic are complementary to each other. In the human subject during the pre-menstrual phase, therefore, the oestrus-producing hormone takes on, probably, a hyperaemizing and secretory function; the hormone of the corpus luteum produces, of course, the menstrual decidua.

I have already referred to the interesting fact that the oestrous cycle in the lower animals is not prevented by the total ablation of the follicular apparatus, which can easily be done by suitable doses of x rays. More interesting still is the occurrence of follicular maturation without oestrus. This result has been very ingeniously produced by Zondek,[9] who by feeding thallium to mice was able to suppress all cyclic changes in the uterus and vagina. The production of the oestrus-producing hormone was, in other words, inhibited, but nevertheless the ovarian cycle or the ripening of the follicles with the formation of corpora lutea was unaffected. From these interesting experimental facts we must infer that the production of the oestrus-producing hormone does not depend upon the maturation of the Graafian follicles, and, conversely, the maturation of the follicle does not depend upon the production of oestrin. All this work paves the way for the reception of the view that the cyclic structures of the ovary as well as the production of its internal secretions or hormones is regulated by outside influences.

The production of premature oestrus, with marked follicular ripening, by the transplantation of the anterior lobe of the pituitary gland into immature rats proves that the oestrus-producing hormone as well as the follicle ripening depends upon a hormone manufactured by the anterior lobe of the pituitary gland.

A point of vital importance is the fact that if the test animals are previously castrated all oestrous phenomena are absent. This indicates that the anterior pituitary produces its effects only through the agency of the ovary. It is to be regarded as the sexual motor of the ovary, so to speak. How is this experimental result to be reconciled with the findings of Evans[10] that large amounts of a saline extract of the anterior pituitary of the ox, when injected daily into the normal rat, resulted in the disappearance of the oestrous cycle and the inhibition of ovulation? This suppression of oestrus and ovulation was found to be associated with remarkable changes in the ovary. All Graafian follicles which had reached the size at which the antrum appears had undergone luteinization—that is, had formed corpora lutea atretica without the intermediate act of ovulation. How can the same hormone produce such diametrically opposed results? In a recent paper Evans and Simpson state that they have been able to demonstrate two distinct hormones in the anterior pituitary, the one having an oestrus- and maturity-producing effect, the other having a luteinizing and oestrus-inhibiting effect. The luteinizing hormone, they say, cannot easily escape from the tissue fragments when transplantation methods are used, but is readily liberated by the method of extraction. Wiesner has also described the separability of these two hormones by different methods of preparation of the extracts. The oestrus- and maturity-producing hormone he calls "alpha," and the luteinizing hormone he calls "beta." He has also shown that if alpha and beta hormones are administered simultaneously, ovulation does not take place; we must logically conclude, therefore, that the beta hormone of the pituitary gland is only active during the stage of pregnancy or pseudo-pregnancy.

In deference to the principle that entities should not be multiplied beyond necessity an attempt has recently been made to identify the beta or luteinizing hormone with the growth hormone of the pituitary gland. It is true that in Evans's and Long's intraperitoneal injections of beef pituitary experimental gigantism was produced as well as the stimulation of the production of the luteal tissue in the ovaries. By the administration of a special extract from the placental tissue Wiesner and Crew have produced all the effects of the so-called beta hormone of the pituitary gland without experimental gigantism. They have, in other words, separated the beta hormone of the pituitary gland from the growth hormone.

Let me now epitomize the human menstrual cycle in terms of the most up-to-date endocrinology.

The alpha hormone of the pituitary gland stimulates the ripening of the follicles and leads to ovulation, while, *at the same time*, it activates the oestrus-producing hormone which produces the gradual development of the endometrium, which is characteristic of the interval phase of the menstrual cycle. The oestrus-producing hormone, combined with the luteinic hormone of the corpus luteum which has been activated by the beta hormone of the pituitary gland, produces the full series of changes which constitute the pre-menstrual phase of the human menstrual cycle. The degeneration of the corpus luteum is followed by decidual necrosis or menstruation. That the withdrawal of the hormonic support of the corpus luteum which is indicated by its degeneration or retrogression is an essential factor in the production of menstruation is a *conclusion* difficult to resist. That it is the only *essential* factor is a question we may well ask without being able to give any confident or dogmatic reply. The degeneration of the corpus luteum is brought about by the withdrawal of the protective influence of the beta hormone of the pituitary gland. Should the ovum become fertilized the trophoblastic cells of the latter prevents degeneration of the corpus luteum by stimulating the production of a further supply of beta hormone from the pituitary gland, and so the pregravid endometrium, instead of necrosing, undergoes further development, while the corpus luteum develops into the corpus luteum of pregnancy.

As I have already stated, Professor Whitehouse, by excising the growing Graafian follicle in the human, has produced menstrual bleedings during the interval phase of the menstrual cycle. In order to harmonize the mechanism of bleeding at this stage with normal menstruation which occurs at the end of the pre-menstrual phase, as well as the oestrus-producing hormone, he postulated the existence of another hormone in the Graafian follicle —a hormone identical in every respect with the luteinic hormone of the corpus luteum. It is the withdrawal of the uplifting influence of this hormone that causes menstrual bleeding. Now if a second hormone is necessary to explain the mechanism of bleeding that occurs during the interval phase of the menstrual cycle, then it cannot be identified with the special hormone of the corpus luteum, for the latter hormone is specific in its action. It is the only hormone that produces a decidual reaction, and there is no evidence of decidual reaction during the interval phase of the menstrual cycle.

Is a second hormone, however, necessary to explain the induction of menstruation in the human by destruction of the ripe Graafian follicle, or for that matter, to explain the occurrence of normal menstruation in monkeys without previous ovulation? Surely Allen's induction of menstruation in the monkey by injection into the ovariectomized animal of the oestrus-producing hormone completely shatters Whitehouse's view. In Allen's experiments it is interesting to note that bleeding does not take place during the injection of the oestrus-producing hormone. The injections, in other words, may be continued indefinitely without producing bleedings. It is only when the injections cease after a certain quantity has been administered that bleeding takes place. From these considerations we must infer that actual bleeding is caused by the withdrawal of the protective influence of the oestrus-producing hormone.

Let me draw attention for a few moments to the most interesting and impressive characteristic of normal menstruation—I mean its remarkable periodicity. The traditional view of the "primacy of the ovum," so strongly advocated by Meyer, has been completely shattered by a number of recent experiments. According to the traditional view the ovum after its discharge from the Graafian follicle lives for a definite span, averaging about fourteen days. If not fertilized it dies at the close of this period, and its protective influence on the corpus luteum comes to an end with a consequent degeneration of this organ. The degeneration of the corpus luteum is followed by a dismantling of the menstrual decidua, which has been produced by the internal secretion of the corpus luteum. There was never at any time any experimental proof that the ovum possessed any hormonic influence or that it had a definite life span of fourteen days. There were hypothetical characteristics that were invoked to explain the facts. In spite, however, of the plausibility of the theory, it must give way before certain facts that have been fairly well established. In my inaugural address to the Medical Society of University College, Dublin,[11] I questioned the validity of the primacy of the ovum on the following grounds:

> (*a*) That in hyperaemic conditions of the ovary the menstrual cycle may be unduly prolonged, which means that either the life span of the ovum is not a fixed quantity or that the life of the corpus luteum depends upon other influences. (From animal experiments we now know that the life of the corpus luteum can be indefinitely prolonged by the continuous administration of the beta hormone of the pituitary gland.)
>
> (*b*) That in many cases of salpingitis with completely occluded tubes the menstrual cycle continues normally.

Such pathological conditions do not, of course, eliminate the possibility of an hormonic influence from the ovum, even if it is lost in the peritoneal cavity. This factor can, however, be eliminated by allowing the ovum to enter the tube and then washing it out. This experiment has been done by a number of investigators, and even in the human subject by Allen and his associates, who first successfully removed human ova from the tube. In these cases, even though the ova were washed out, the sexual cycle was undisturbed. Lastly, the occurrence in monkeys of definite periodic bleeding with no sign of ovulation is conclusive proof that the periodicity of menstruation, at any rate, is not regulated by the ovum.

A recent publication by Wagner[12] ascribes to the corpus luteum the important role in the menstrual rhythm hitherto credited to the ovum. Wagner believes that the ovum can exert a distinct hormonic effect only in combination with other cells like the trophoblastic cells. The fertilized egg, for example, is like the corpus luteum an inhibitor of ovulation and menstruation. It is to the corpus luteum rather than to the ovum that Wagner ascribes a definite span of life. When this has been run and the structure retrogresses menstruation occurs. That, of course, is quite true, but the life span of the corpus luteum depends upon the hormonic influence of the beta hormone of the pituitary gland. Is the beta hormone of the pituitary gland, then, responsible for the menstrual rhythm? Now the beta hormone only becomes active after ovulation, which is stated to occur at about the fourteenth day of the cycle. It may occur at any time. Its variable occurrence, however, does not seem to upset the menstrual rhythm. Besides, the periodic appearance of the beta hormone demands the existence of a special mechanism whose nature, so far as I know, has not yet been ascertained. Instead, however, of looking at the end of the cycle let us look at the beginning of it. Perhaps the alpha hormone of the pituitary gland regulates the rhythm. No—because continued administration of the alpha hormone does not prolong the oestrous cycle. It cannot, therefore, change the date of menstruation. In my presidential address I stated that the menstrual rhythm seemed to depend upon no special mechanism. It was due, I thought, to the harmonious adjustment of many ductless glands, the disturbance of any one of which may disturb the periodicity of the cycle.

What is the explanation, however, of this nice adjustment? To answer that question I invited my auditors to look at the matter from the teleological point of view.

> "Although," I said, "the monthly recurrence of menstruation is rather inconvenient for the individual, it is a beautiful piece of design from the point of view of the race. On account of the fact that in the higher animals sexual intercourse may take place at any time and that ovulation and insemination do not occur at the same time, a monthly recurrence of a pregravid endometrium is Nature's method of securing fertility among the higher animals. Why should only a certain amount of secretion be present at this particular time and at that particular place, in order that Nature's end may be achieved? These are teleological questions which, of course, we are entitled to ask. If we could but answer them all we should solve the mystery of life."

I am glad to see that Emil Novak[13] in a recent paper agrees with my view of the periodicity of the human menstrual cycle. These are his words:

"In reference to Wagner's views on the primacy of the corpus luteum, provocative as Wagner's study is, it makes one wonder whether we are not chasing a will-o'-the-wisp, for beyond the corpus luteum looms the pituitary, and perhaps beyond the latter we shall have to fall back on some innate periodic human factor as elusive as the life principle itself."

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SUBACUTE COMBINED DEGENERATION OF THE CORD IN PRIMARY ANAEMIA OF THE FOWL:

ITS PATHOGENESIS AND THAT OF ASSOCIATED LESIONS.

BY

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(*With Special Plate.*)

IN a previous communication[1] subacute combined degeneration of the cord was described as occurring in fowls with primary or pernicious anaemia. This subject is of such importance to an understanding of pernicious anaemia and its nervous complications in the human being that the condition has been taken up again for more detailed discussion in the present paper.

During the past four years seven such cases have been recognized and observed in some detail. Their essential nature was first suspected when, post mortem, the milk-chocolate-coloured liver, small in size, was found present. This, indicative of the presence of haemosiderosis, is one of the most characteristic findings in primary anaemia of the fowl. A description of the cases in question will now be given.

CASE I.

Hen 104. White Leghorn, 1 year old, has been ill for some time, lying about on its side. When approached it tries to escape, but staggers and at once tumbles on to its side again; mentally it is quite alert. It died before any extended examination of its blood was made. The haemoglobin, however, was 60 per cent., while a blood film showed a fair degree of erythroblastosis.

Post mortem it was found to be very emaciated. Naked eye, no obvious lesion was seen except that the liver, spleen, and kidney were exceptionally small in size, and that the liver showed the "milk-chocolate" hue. The femur and tibia were filled with an abnormal marrow, which resembled blood in its colour and consistence; while the metatarsal bone was exceptional in that the fat there, instead of being pure yellow in colour, was of a reddish tint.

Microscopic examination disclosed a marked haemosiderosis in the liver, spleen, and kidney; in the latter, especially of the secreting tubules. The occurrence in this latter situation is to be emphasized because, in my experience, this has been found associated only with haemolytic conditions, and has not been observed to occur otherwise, as, for instance, in feeding experiments with large doses of iron salts. Its occurrence, together with the appearances in the liver and spleen, in cases like the present one, is regarded as strong evidence of a primary anaemic condition, existing behind the more obvious nervous implication.

The marrow showed the appearances one finds in a primary anaemia—namely, a haemocytoblastic hyperplasia and entire absence of fat cells. The lower dorsal region and the lumbar enlargement of the spinal cord were treated by Marchi's method. Sections prepared from these situations showed in both, but especially in the dorsal region, degeneration of the white matter in the posterior and antero-lateral columns of the cord. There was no neuroglial proliferation or sclerosis.

CASE II.

Hen 105. White Leghorn, 1 year old, has been lying about for some time; quite alert, but shows a weakness of the right leg. Haemoglobin is 70 per cent. (normal for fowl); blood films show slight changes only, of the nature of anisocytosis; no erythroblasts seen.

The conditions found, post mortem, and microscopically in the liver, spleen, and kidney, especially as regards haemosiderosis, and in the marrow, were as in hen 104. The cord in the dorsal and lumbar regions showed similar degenerative changes.

CASE III.

Hen 107. Light Sussex, 3 years old, paralysed in both legs and unable to stand. Haemoglobin is 70 per cent., red blood cells 2,000,000 per c.mm., while the blood films show nothing distinctively abnormal.

Post mortem, the conditions present were much as in the previous cases. This hen, however, was very fat. The femur and tibia were greatly sclerosed and thickened, resulting in a great diminution in the quantity of marrow. This was of a pale colour, and looked like dirty tallow.

Microscopically the liver, spleen, and kidney, especially as regards haemosiderosis, resembled previous cases. Here, however, the marrow was of a very fatty aplastic nature, there being very little evidence of any haematopoietic activity, and it was greatly reduced in quantity owing to the bone sclerosis.

The cord in the dorsal and lumbar regions was more markedly involved than in the previous cases. The same columns as previously were affected with the degenerative process. Fig. 1 shows the condition in the lumbar enlargement, degeneration being especially noticeable in the posterior columns.

CASE IV.

Hen 121. White Leghorn, 1 year old, unable to walk. When it tries to do so it tumbles over on to its side. Haemoglobin is 70 per cent., while the blood films show nothing abnormal. The conditions found post mortem were as usual. The omentum, however, contained a great quantity of fat; the fowl was not emaciated. The marrow in the femur and tibia was of a pale grey colour, and quite abnormal.

Microscopically the appearances in the liver, spleen, and kidney, especially as regards haemosiderosis, were as in previous cases. The marrow was aplastic and fatty, and showed very little active haematopoiesis. Very marked degenerative changes similar to those already described were found in the dorsal and lumbar regions of the cord.

CASE V.

Hen 122. White Leghorn, 1 year old, showed considerable weakness in the legs, but not so marked as some of the others. Haemoglobin was 60 per cent., while the blood films showed nothing markedly abnormal. Post mortem the usual conditions were found, including the milk-chocolate-coloured liver. There was great emaciation. The marrow in the femur and tibia was crimson and very fluid, resembling thin red-currant jelly.

Microscopically the liver, spleen, and kidney were as usual, the haemosiderotic condition being marked. The marrow showed great congestion of numerous blood sinuses, which had replaced the usual fat cells and functioning marrow tissue. The changes in the dorsal and lumbar cord were as in hen 121, only not so marked.

CASE VI.

Hen 223. White Leghorn, 1 year old, paralysed and unable to stand. The haemoglobin was 40 per cent., while the red blood cells numbered 845,000 per c.mm. Blood films showed marked erythroblastic changes.

Post mortem the conditions found were as in previous cases. This hen, however, was not emaciated. By this time one had come to appreciate the importance of the duodenum in relation to the excretion of iron in primary anaemia,[2] and the duodenal mucosa in this case was found to be deep rusty brown in colour. The femur and tibia were very markedly sclerosed, while the greatly diminished marrow was quite abnormal in appearance, being of a pale grey colour.

Microscopically the appearances in the liver, spleen, and kidney were as in the previous cases, including the haemosiderosis. The duodenal villi showed considerable iron pigment in their cores. The marrow was very definitely aplastic. The dorsal and lumbar cord showed the usual lesions.

CASE VII.

Hen 360. White Leghorn, 2 years old, can walk about and even run, but every now and then, without warning, it falls backwards and sits down. It lies in the house all day, and does not mingle with the other hens in the run. The haemoglobin was 70 per cent., and red blood cell count 2,100,000 per c.mm. Blood films showed nothing markedly abnormal.

The conditions found post mortem were as usual, including the typical liver appearances. The mucosa of the duodenum was slightly less brown than in hen 223. The femur and tibia showed

great sclerosis, and the marrow was considerably diminished in quantity. It was of a reddish colour.

Microscopically the appearances in the liver, spleen, and kidney were as usual, including the haemosiderosis. The marrow showed absence of fat cells and great increase in number and distension of the venous sinuses, with consequent diminution of the haematopoietic tissue. Sections of the lumbar and dorsal cord showed very marked degeneration in the usual situations. The condition present in the dorsal cord is shown in Fig. 2.

The important findings derived from these observations may be summarized. In a series of fowls, lesions of the cord, indistinguishable from those described as occurring in subacute combined degeneration of the cord in human beings, have been found. In all the cases this has been associated with the existence of a high degree of haemosiderosis of the liver, spleen, and kidney, and also of the mucosa of the duodenum, where this was examined. In three cases there was also very marked sclerosis of the bones, with great diminution in the quantity and marked change in the appearance of the marrow. The marrow, when examined microscopically, has been found to be abnormal in all the cases. In some it showed atrophy or aplasia; in others considerable diminution, accompanied by great increase and distension of the venous sinuses; while in others it showed a haemocytoblastic hypertrophy, such as one finds typically in active pernicious anaemia of the fowl. In some of the cases there was comparatively little alteration in the circulating blood. In one case, however, there was considerable reduction in the haemoglobin percentage and number of red blood cells, while in others there was evidence of blood instability, as shown by the presence of erythroblasts.

Attention may also be drawn to a further circumstance. It will be seen that most of the cases in the present series are in young fowls of about a year old. Further, that in the older cases sclerosis of the bones becomes a more marked feature. These occurrences are exactly paralleled by what takes place in the pure primary anaemia of the fowl without nervous complications. This circumstance suggests the essential identity of the two conditions.

The significance of the occurrence of the paralytic symptoms in fowls, the circulating blood of which seemed in most cases to be fairly normal for the time being, requires discussion at the outset. In the routine of the poultry industry a fowl is rarely noticed to be anaemic or to have a yellowish comb until the haemoglobin has fallen to about 35 per cent.* It may be mentioned, however, that yellowness of the comb is not a function of the haemoglobin content of the blood alone. It is determined also by the strength of the circulation, which, even if the blood has a low haemoglobin content, may suffice to keep the cavernous sinuses of the comb sufficiently full of blood to hide the normal yellow coloration of the tissues due to carotene or xanthophyll,† and thus produce a reddish coloration. There is room, obviously, for exceptions to the above rule, which, however, is not submitted as being infallible.

In general, therefore, in fowls, there occurs a zone of haemoglobin deficiency between 70 per cent. (normal) and 35 per cent., within the limits of which the fowl may not be discovered in practice to be ailing at all, or specifically to be suffering from an anaemia. For long periods, therefore, with relapse and remission, it is possible that fowls may be affected with a severe anaemia without this being appreciated. In the present series, for instance, in the majority of the cases there was no history of previous illness or of the occurrence of anaemia. Another aspect of the same subject is the fact that in routine practice fowls with anaemia of gravity indicated by 20 per cent. haemoglobin and 400,000 red blood cells per c.mm. may be regarded as having been *just* taken ill, when further examination shows them to have very old-standing disease in a relapse stage after a long remission.

That in the paralysed fowls of this series there has been a state of anaemia, associated with haemolysis, is amply evidenced by the haemosiderosis, and that it has been of comparatively long duration is shown by the state of the marrow and the advanced sclerosis of the bones. How the circulating blood happens to be normal, more or less, when these cases are first observed, and what bearing these points have on an understanding of the human disease, will be discussed shortly.

Before going on to the general discussion the ground may be further cleared by referring to some points which, apparently axiomatic, are nevertheless liable to be overlooked. An organ or tissue may be damaged, so far as the influence on it of its blood supply is concerned, either from normal blood being supplied to it in insufficient quantity (owing, perhaps, to the supply vessels being constricted or to the blood pressure being low), or from blood, abnormal in cell and haemoglobin content, being supplied in the normal quantity, or even in deficient quantity, owing to weakness of the heart and low blood pressure—occurrences very common in anaemic conditions. These considerations have an important bearing on an understanding of the changes occurring in certain organs—for example, the nervous system, stomach, etc.—as will be discussed later on.

Collier,[3] in dealing with subacute combined degeneration of the spinal cord, mentions as a synonymous designation for the condition "the anaemic spinal disease." This in itself will serve to show how closely this disease has been associated in some minds with anaemia. He states, further, that the early writers believed that the anaemia was the essential part of the disease, and that the degenerations in the nervous system were the result of vascular changes* consequent on the anaemia. He goes on to mention that this view is negatived by the fact that some cases progress to a fatal issue without any evidence of anaemia. As has just been pointed out, however, anoxaemia of a part may be due to lack of blood as a whole rather than to a deficit of haemoglobin and red blood cells in the blood. In this regard it may be mentioned that Kattiwinkle (quoted by Collier) considers that the primary spots of degeneration in the cord in this disease are determined by the vascular distribution, and that they result from disease of the perivascular lymphatics. Again, Osler and McCrae,[4] while arguing for a toxic origin of the disease, point out that the action of the toxin on the nervous system affects first, as one would expect, those tracts whose mere length must necessitate a more elaborate nutrition for their maintenance. It is obvious that the long tracts would be at least equally liable to damage owing to the difficulties of blood supply, especially in conditions of anaemia, where not only is the blood poor in quality, but the quantity deficient, owing to the weakness of the heart and the lowered blood pressure.

It may be that the cases of subacute combined degeneration of the cord associated with pernicious anaemia do not constitute *all* the possible cases of this disease. There may be others due to mechanical anoxaemia, and these might theoretically constitute the cases referred to by Collier as being unassociated with anaemia. Another more likely possibility will be discussed immediately.

Following his original argument, Collier proceeds to state, as evidence against an anaemic causation, that in other cases the nervous manifestations may become severe long before any anaemia is present. The possibility that anaemia of sufficient degree to be damaging may have been present previously, but unobserved, in such cases is not discussed. Such a contingency, we have shown, cannot be overlooked in fowls. Parallel events, moreover, occur in pernicious anaemia in human beings. Naegeli,[5] Gulland and Goodall,[6] Davidson and Gulland,[7] and others have drawn particular attention to the characteristic fact that persons with pernicious anaemia have an amount of vigour and capacity for work quite out of all proportion to the degree of anaemia they are suffering from. It is obvious that such persons would not seek advice till the disease was well advanced. Again, in very many cases patients suffering from pernicious anaemia present them-

* Observations made on a considerable number of "healthy" hens, which showed no outward signs of anaemia, have disclosed in several cases not only haemoglobin and red blood cell deficit, but, more important from the point of view of the present discussion, marked haemosiderosis and considerable marrow changes.

† Yellowness of the comb and other body tissues, especially the fat, is a very frequent occurrence in primary anaemia. This is not due to bilirubin, but to carotenoid pigments which are unoxidized and so accumulate (vide Rummo, *Rif. Med.*, 1930, January 30th, p. 96; also Bedson and Knight, *Journ. Path. and Bact.*, 1924, 27, p. 239).

* Vascular changes as distinct from oligohaemoglobinaemia and oligocythaemia, as discussed later in this connexion.

selves for examination, not for anaemia or its immediate results, but for some minor complication such as ulcers of the tongue, etc. It does not seem too much to suppose, therefore, that degrees of anaemia—short of a certain limiting but surprisingly low threshold value—may, when unaccompanied by complications which cause the patient to seek advice, have been present for long periods unobserved in the cases one is dealing with here. This is all the more likely when one considers the remissive nature of the disease and the fact that the earlier attacks are less severe than the later ones, and become gradually worse.

In his argument against anaemia being the essential cause of the disease, Collier further states that no case has been recorded or has occurred in the large series examined by himself in which the nervous manifestations developed in a patient already under observation for anaemia. Davidson and Gulland take exception to this statement in its absolute form, but, even if it is not strictly true as it stands, it nevertheless emphasizes an important phase, which has its parallel in the disease in fowls. Of the many fowls which had frank anaemia at the time the birds first came under observation, not one subsequently developed nervous symptoms, although many were kept under observation for very long periods, having regard to the age to which a fowl normally lives.

Such an occurrence, however, does not necessarily bear the interpretation which Collier puts on it. It may be that all the cases liable to be affected with nervous symptoms in the course of the disease are affected once and for all in the early stages; possibly because adaptation of the nervous system to the changed blood supply, rapid in the majority of instances, is slow in such cases. These, moreover, would constitute the cases, already referred to, where anaemia is not prominent at the time the patients come under observation. It seems likely that the enforced rest, due to the paralysis, has been effective in rendering the anaemia unobservable. Davidson and Gulland and others have stressed the great importance of rest as a therapeutic measure in bringing about remissions of anaemia and preventing relapses. It seems likely that in cases not prostrated by the initial attack there is gradual accommodation to the new conditions of the blood and its circulation, and the nervous system becomes so adjusted to the altered environment as to be immune more or less to the subsequent onset of the nervous complications.

The idea underlying the explanation suggested here is that the central nervous system can accommodate itself to a condition of anoxaemia just as it can to high barometric pressure and subsequent decompression, if in all cases the changed conditions are imposed gradually. In both sets of circumstances, however, a certain proportion of cases suffer.

Observers are not unanimous about the percentage incidence of nervous sequelae in pernicious anaemia cases. Thus Woltmann (quoted by Piney[8]) states that neurological symptoms occur in over 80 per cent. of the cases, and histological lesions of the spinal cord in a slightly greater percentage. Davidson and Gulland maintain that only 5 per cent. of the anaemic cases show definite evidence of cord damage. The nervous symptoms present in the other 75 per cent. of the cases, they state, are those that occur in any severe anaemia, and are due solely to the anaemia and cardiac weakness.

The pathological changes present in the spinal cord in this disease are minutely described by Collier. The essential lesion is a degeneration of the nerve fibres of various columns, but without any neurological proliferation to produce sclerosis and shrinkage of the cord. This characteristic absence of neuroglial proliferation must be emphasized. Piney says in this connexion that it is difficult to imagine that lesions which cause no reaction on the part of the adjacent tissues can be inflammatory in nature, and if one postulates the action of a toxin, the difficulties, he states, are perhaps even greater. Other writers have felt the same difficulty in explaining the absence of reaction on the part of the surrounding tissues. Piney attempts a solution in a manner with which I am unable to agree. He suggests that the characters of the changes give the impression that they are due to "abiotrophy" in the sense of the word as used by Gowers—namely, the possession of a variety of hereditary constitutional weakness of the tissue.

The latest authors subscribing to the view that patients with pernicious anaemia have an hereditary constitutional weakness or diathesis are Davidson and Gulland. Their argument is that occasionally several cases of pernicious anaemia have occurred in the same family or in near relatives, which suggests the existence of a constitution predisposing to the disease. Davidson and Gulland themselves calculate that pernicious anaemia occurs to the extent of one case in twenty thousand of the general population, this being deduced from the fact that the mortality rate for the disease is 3 to 6 per 100,000 of the population. It follows that from the time pernicious anaemia was recognized and written about as a disease entity hundreds of thousands of cases must have occurred. Nevertheless, out of this total, at a generous estimate, only a few hundred individual cases have shown a familial relationship. These cases would appear to be the exceptions, and it seems likely that an explanation of their occurrence would be found along the line of similar habits, similar environment, exposure to similar producing causes, whatever these may be; or, indeed, even in terms of mere chance occurrence. A similar conclusion has been drawn from the facts that in *Bothriocephalus latus* anaemia a similar familial relationship has been discovered; that a few only of the harbourers of the parasite develop the anaemia; and also that an individual may suffer from a bothriocephalus anaemia, be cured of this by the expulsion of the parasite, and later on develop a true idiopathic pernicious anaemia.* It is difficult to see how such a conclusion could be drawn from such premisses. Disease results from the interaction of two factors: an exciting cause, and a susceptible organism on which the cause acts. Disease may appear not only in a weakened or predisposed organism—and many factors other than heredity may produce such weakness or predisposition—but in an organism subjected to more than usually virulent exciting causes. Again, as is suggested in the foot-note, the so-called idiopathic cases, which develop later, may be the direct result of the original bothriocephalus infection.

A diathesis has also been alleged to exist with regard to the appearance of disease phenomena in individual organs, such as the nervous system, the stomach, the liver, and the bone marrow (*vide* Davidson and Gulland). Allusion has already been made to Piney's statement about the part played by "abiotrophy," an inherited tendency, in the production of the nervous phenomena. Similarly, Davidson and Gulland state that the constitutional factor is found at its greatest in the central nervous system, and is generally accepted as the essential cause of the familial hereditary ataxias. But the familial hereditary ataxias are characterized by marked neuroglial proliferation and sclerosis of the cord, a condition that is characteristically lacking in pernicious anaemia. Collier, who has had an unrivalled experience of cases of subacute combined degeneration of the cord in all its forms, states categorically that heredity is not a factor in the occurrence of the disease.

Viewing the question generally, it can be said with justice that if hereditary predisposition is held responsible for lesions of the nervous system (and other systems and organs) in this disease, then it can logically be held responsible for the sequelae and complications of each and every individual disease in which complications and sequelae are irregular in their occurrence. Those cases having them would, on this basis, possess an hereditary constitutional predisposition to them of the particular organ or system affected, and *vice versa*.

In my view the nervous complications are in all likelihood the consequences of the anoxaemic condition characteristic of the disease. This conception explains the absence of the neuroglial proliferation and sclerosis of the cord; and it accounts for the site of election of the cord lesions—namely, in long tracts of the lower dorsal region, with their nutritional disabilities and difficult blood supply.

Many writers believe that achlorhydria of the stomach is an essential component of the symptom-complex of

*Evidence is accumulating that in the fowl the anaemia may persist and cause death long after the tapeworms which originated it have disappeared from the body. This would indicate that the tapeworms have set up a condition which subsequently can develop independently.

pernicious anaemia. Some even maintain that this organ has an hereditary constitutional predisposition to the disease (Davidson and Gulland). In the first place, they allege that achlorhydria is a constant in pernicious anaemia, and that in a few cases there has been evidence of achlorhydria years before the patient developed pernicious anaemia; secondly, that relatives of pernicious anaemia patients are more prone to achlorhydria than individuals in the general population, and that these same phenomena have been observed in regard to bothriocephalus anaemia. On the other hand, however, it is indisputable that cases of pernicious anaemia occur with quite normal gastric secretion (Davidson and Gulland); that achlorhydria occurs also in ordinary secondary anaemias; that it occurs in many normal individuals and in many so-called acquired achlorhydric patients (Davidson and Gulland), about whom there is no evidence of greater liability to pernicious anaemia than in the general population.

Moreover, other explanations of the achlorhydria are more in keeping with the facts. Elsewhere[9] I have adduced evidence to show that the condition is a sequel to the anoxaemia of the central disease. I showed that in anaemic pigs there was a considerable lowering of the alkali reserve of the blood, and that, in the cases so far examined, this was accompanied by an entire absence of acidity of the gastric contents. Having regard to the respiratory difficulties in conditions of anaemia and the importance of the "chloride shift" in respiration, these facts suggested that the achlorhydria was a direct result of the blood condition. Such a view is supported by work carried out with histamine. Thus, Katzenelbogen[10] has shown that the injection of histamine causes a simultaneous rise of the alkali reserve and a secretion of acid gastric juice into the stomach, a combined result which cannot be without significance in the present issue. Bennet and Dodds's results from gastric analysis and estimation of the alveolar carbon dioxide tension point in the same direction.[11]

Apart from these considerations, the actual anoxaemia will make it difficult for the stomach to carry out its function properly. When a remission has been produced in pernicious anaemia, say, by liver extract, the stomach has been said never again to secrete free hydrochloric acid (Davidson and Gulland). Vaughan[12] does not agree with this view, but even if it is correct it seems capable of a simple explanation along lines already indicated. The achlorhydria would at first be functional. Its persistence, however, over long periods would lead to bacterial infection of the stomach, and this, together with the anoxaemia, especially in the debilitated state of the body due to the anaemia, would result in the production of organic changes in the mucosa which would render the condition permanent. Such organic changes have, indeed, been described as present in every case by Faber and Bloch (Davidson and Gulland).

I shall now consider the part possibly played by the liver in the disease. In a prolonged discussion of the cause of megaloblastic formation in pernicious anaemia, Davidson and Gulland, after having practically dismissed the views of Pepper, Cohnheim, and Ehrlich that the megaloblastic change occurs as the result of an inborn error or constitutional defect in the marrow or of a toxin acting on the marrow (the latter on the grounds that no such toxin has ever been demonstrated), proceed to state that both these theories take a very subsidiary place to the one which they now propose to expound.* They believe that there exists in the body, principally in the liver, but also in the kidneys and to a less extent in certain other structures, a substance whose presence in sufficient concentration is essential for normal blood formation. A deficiency of this unknown but specific factor causes a megaloblastic anaemia. In spite of their recognition, by implication if not by actual statement, that this factor occurs in tissues other than those of the liver, they show nevertheless that they regard the condition as one of deficiency of the liver, and of the liver only,* in regard to this specific factor. Clearly, on their own submissions, the kidney and other organs are equally involved.

One may, however, adduce reasons for believing that the liver is the organ mainly at fault in regard to the actual *supplying* of the factor. Elsewhere[13] I have shown that in conditions of iron deficiency in pigs extirpation of practically the whole liver has a profound effect on cell multiplication in the marrow. In such conditions the marrow is intrinsically sound, but the absence of the liver factor leads to the production of normoblasts by amitotic division of the megacaryocytes. This, it should be noted, is a cell division abnormality, and indicates an influence of the liver on cell growth. In this connexion it should be emphasized that McCollum[14] has shown that liver and kidney have a marked effect on cell multiplication. Further, attention may be drawn to the fact that the marrow differs from most other tissues in the body, in that cell multiplication and ripening is its main function. The others metabolize, store, and so forth; but cell multiplication in them is more or less at a standstill. These considerations may account for the practical absence of the liver factor in the marrow, where it is used up in cell multiplication; and for its presence in such quantities in, for example, the kidney, where it is not used for this purpose and can therefore be stored. There is thus considerable evidence for the view that the liver prepares a substance which has a marked influence in controlling the healthy marrow; and it seems probable that this or some allied substance may have an equally profound effect on a marrow already diseased.

Although I regard the liver as the factory where the agent is produced, I do not assume disease of the liver to be the essential primary cause of pernicious anaemia. In my view[15] the liver is healthy at the beginning of the disease; but later on a vicious circle may set in and, owing to ever-increasing anoxaemia, the liver becomes more and more disabled. The marrow is, I believe, the primary seat of the disease. Under ordinary conditions one may suppose that the healthy liver produces sufficient liver agent to keep the healthy marrow under control and prevent the formation of embryonic cells. Once, however, owing to the action of some irritant, the marrow becomes disordered, the healthy liver can no longer produce enough agent to keep it in check, a vicious circle is set up, and the marrow proceeds with ever-increasing speed to complete disorganization. It is only when the agent already supplied by the patient's liver (possibly still healthy and acting to its full extent) is supplemented by an agent from outside sources that a check is put on the process.

Castle's[16] work may be reviewed in the light of what has just been said. He found that when beef-steak that had been previously digested in a normal person's stomach was given in suitable amounts to a person suffering from pernicious anaemia, a typical reticulocyte response could be elicited, although the same amount of beef-steak itself, or of the digestive juices alone, or of beef-steak artificially digested in a test tube, completely failed. Castle's conclusion from these facts is that the patient's stomach lacks some factor which allows the active principle to be obtained from ordinary meat, and he believes the stomach to be the organ primarily at fault. Against such a view is the fact that in a certain number of cases of pernicious anaemia gastric digestion is normal. The phenomena can easily be explained by the supposition that, owing to the digestive disabilities of the stomach, the liver is no longer receiving the raw materials from which it can elaborate the agent or principle.

Pepper[17] and Cohnheim[18] held the opinion that the essence of pernicious anaemia was that the bone marrow had reverted to an embryonic type; they considered that an embryological, developmental, or hereditary factor had sufficient "drive" in itself to produce the disease. Later observers, including Ehrlich,[19] extended this view by suggesting that the changes in the marrow were due to the action of a toxin. In many instances this toxin was regarded as being haemolytic. Elsewhere,[1] in connexion with this possibility, I have shown that the haemolysis, which gives rise to a haemosiderosis, is the result of the disease and not the cause of it. Moreover, haemolytic toxins produce a normoblastic or macroblastic condition of the marrow and blood, not a megaloblastic and megalocytic one.

* It is to be inferred from their argument that they regard the liver as the primary seat of the disease. Peabody (*Amer. Journ. Path.*, 1927, iii, p. 179) and others had already emphasized the importance of the liver.

There would seem to be little doubt that a toxin or an allied substance acting on the marrow is at the root of the production of the disease. Here, by its irritative or stimulating action, it produces a specific type of marrow change. There is no evidence for the view that the lesions in the various organs in pernicious anaemia are produced directly by the same toxin or by a variety of different toxins. Everything suggests that the conditions in the nervous system, stomach, and liver (in the later stages) are produced secondarily by the anoxaemic state brought about by the primary marrow lesion. Any other view would seem to be incapable of explaining how such diverse causes as those producing idiopathic pernicious anaemia, sprue, and the pernicious anaemia of pregnancy, syphilis, tapeworm infestation, malaria, etc., can so uniformly bring about what Vaughan calls these "oddly associated lesions."

Summary.

The essential and primary factor in the production of pernicious anaemia is the involvement of the bone marrow in an irritative process, which causes it to revert to embryonic cell formation.

The resulting anoxaemia causes, secondarily, the complications which are to be found in the central nervous system, the stomach, and the liver (later stages).

There is no evidence for the existence of a "pernicious anaemia diathesis" either in relation to the disease as a whole or to the organ complications.

I wish to express my indebtedness to Mr. Archibald Macdonald, M.A., B.Sc., for supplying the fowls; to Dr. Marion B. Richards and Mr. Kenneth McKenzie, M.Sc., for preparing the photographs; and to the Carnegie Trust for the Universities of Scotland for a grant towards their reproduction.

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THORACIC STOMACHS:

A Study of Pharyngeal Pouch and Cardiospasm, with Report of Three Cases.

BY

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(*With Special Plate.*)

For several decades occasional observers have reported cases of simple dilatations of the oesophagus resembling adventitious stomachs, but they are only now becoming readily recognized. For this recent facility in diagnosis we have to thank Roentgen. Radiography, after the ingestion of an opaque meal, makes the diagnosis of such

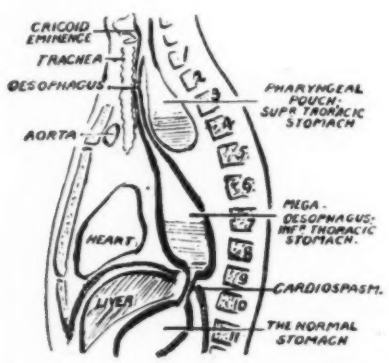

FIG. A.—Showing upper and lower thoracic stomachs in profile in the chest.

intrathoracic enlargements one of easy and convincing clarity instead of recondite conjecture, as when the doctor depends wholly on clinical acumen.

These expansions are found at the upper and lower ends of the gullet. In shape and in their relationship to the parent gullet they resemble aneurysms, such as occur in the adjacent aorta. The upper is saccular and the lower fusiform in outline. A diagram of them in profile indicates their deep dwellings in the chest—and the reason for the picturesque title of these remarks (Fig. A). As a matter of fact, the title is not an abuse of the word "stomach," but a reversion to its proper use, for "stomach" is derived from the Greek word meaning "gullet," and Galen, among other anatomists, preferred the name "ventricle" for the subdiaphragmatic stomach. They are familiar as "pharyngeal pouch" or "diverticulum," the lower one occurring in the condition known as cardiospasm. Diaphragmatic hernia of the normal stomach into the thorax is not included in this paper.

It is hoped that reasons other than the mere infrequency and pathological curiosity of these conditions will make this communication helpful. A doctor's duty to his patients makes it necessary to recall these disorders to mind from time to time. Their remoteness in the hidden depths of the chest hides them from simple view, and the old saying still holds good—"Out of sight, out of mind." While failure to recognize some lesions makes little practical difference to the patient, this is not true in the case of thoracic stomachs. They disable the victim, progressively and gravely, if left to nature, but, despite their inaccessibility, they are amenable to sure relief by surgery. Reports on such cases, rare but vital, keep the doctor on the look out for them.

A few notes of illustrative cases will serve as a basis for consideration of the clinical features of these alimentary pouches.

Case I.

W. H. C., aged 62, was a monumental mason, but had only been a supervisor for the last fifteen years. He came to me in August, 1929. His past health had been good. He stated that for ten years queer audible noises occurred during swallowing. Three years ago vomiting—as from a pump—started and brought relief. For nine months there had been increasing dysphagia and vomiting. This was lately so severe that life had become unbearable; he was rapidly losing weight, and had increasing constipation for five months. He sought urgent relief in order to nourish himself. He had been disposed to heart attacks, having fainted three times in the street, and he had swelling of the feet.

On examination he was somewhat pale and spare in flesh. His teeth were offensive. There was no swelling in his neck, but there was a feeling of food stoppage behind the upper ribs. A vomit of six ounces by his bed looked like creamy tomato soup. It was acid to litmus, due to decomposition, not, presumably, to admixture with gastric juices, and inoffensive in odour. Vomiting occurred within, at the most, a few minutes of ingestion. Pharyngoscopy by Mr. Angell James revealed the walls of the pouch, but no exit.

He was radiographed after the ingestion of an opaque meal, when the barium was seen to occupy a substernal pouch the shape of half a small orange, with the flat surface upwards (Figs. 1 and 2). It was median, with a slight bulge to the right, and its smooth, convex lower aspect was at the level of the fourth dorsal vertebra.

Similar cases reported in the literature occur mostly in patients of the fifth decade, and are of several years' duration. Sensations of strangling and of troublesome coughing on recumbency are noted, as well as regurgitation of food on pressure of the left side of the neck. The patient referred to above showed diminished nutrition, for thoracic stomachs, unlike their abdominal congener, boast no digestive attributes, but rather impede the process.

FIG. 1.

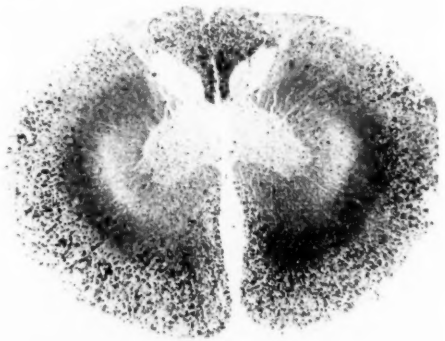

FIG. 2.

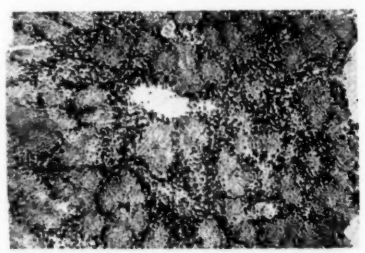

FIG. 3.

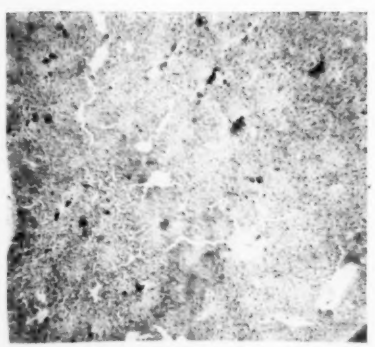

FIG. 4.

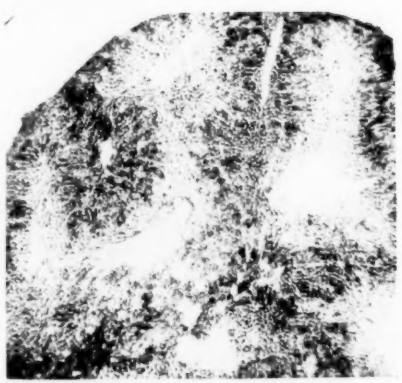

FIG. 5.

FIG. 1.—Hen 107, Case III. Lumbar enlargement of cord, Marchi's method; showing marked degeneration in the dorsal columns, also some in the anterior and antero-lateral.

FIG. 2.—Hen 360, Case VII. Lower dorsal region of cord, Marchi's method; showing marked degeneration in the dorsal, anterior, and antero-lateral columns.

FIG. 3.—Hen 105, Case II. Section of spleen, potassium ferrocyanide and HCl; showing marked haemosiderosis in the splenic pulp.

FIG. 4.—Hen 121, Case IV. Section of liver, potassium ferrocyanide and HCl; showing marked haemosiderosis of the Kupffer cells and also diffuse haemosiderosis in the liver cells.

FIG. 5.—Hen 223, Case VI. Section of kidney, potassium ferrocyanide and HCl; high power, showing marked haemosiderosis of the secreting convoluted tubules.

(a) (b) (c)

FIG. 1.—(a) Skiagram of Ptolemaic femur; (b) photograph of same; (c) skiagram of humerus in hospital patient, for comparison.

(a) (b)

FIG. 2.—(a) Photograph of pre-dynastic jaw; (b) skiagram of same.

A. WILFRID ADAMS: THORACIC STOMACHS.

FIG. 1.—Skiagram of W. H. C., showing pharyngeal pouch, antero-posterior view.

FIG. 2.—Skiagram of W. H. C., showing pharyngeal pouch, lateral view.

FIG. 3.—Photograph of W. H. C., showing pharyngeal pouch stitched to the surface of the skin.

FIG. 4.—Dilated lower gullet of W. S.; case of cardiospasm. (1929.)

FIG. 5.—Mercury bougie entering stomach of W. S. (1929.)

FIG. 6.—Lower thoracic stomach of A. F.; case of cardiospasm.

Operative Treatment.

Following the method used by Wilkie,[1] diverticulectomy was commenced on September 4th, 1929, and the second stage of the operation was completed on the 18th. The pouch was exposed by an incision along the anterior border of the left sterno-mastoid muscle between the thyroid gland and larynx medially and the carotid sheath laterally. Resting on the prevertebral muscles was a smooth, bluish-yellow, flappy, membranous structure. It was like a thick-walled hernial sac, disclosing boundaries and coming to resemble a bag as it was gently dissected free of the vertebrae at the back and the viscera in front. The recurrent laryngeal nerve was guarded. To help to define the neck of the sac at this stage, an oesophageal bougie was passed by Dr. Stock with ease, demonstrating the absence of stricture. Here and there a few vessels coursed over the sac and were ligated, but bleeding was not troublesome. The sac was pulled on to the neck, and maintained there by stitching it to the skin margins (Fig. 3). The patient swallowed solids joyfully after this operation, and suffered only mild cellulitis. The second stage consisted in dissection of the pouch to its neck, which was ligated; the fundus was cut off, and the stump cauterized.

The patient was able to eat anything after this, and returned home and was about for a short time. During this period the neck healed soundly. He then had an attack of influenza followed by pyrexia, and died in four months. When he was radiographed in November an opaque meal dropped straight to his stomach; no trace remained in his neck. Professor Nixon saw him on November 12th, and stated that his poor health had nothing to do with the operation.

A rival procedure for diverticulectomy is diverticulopexy—that is, fixation of the inverted sac—so successfully carried out by Hill[2] in a series of fifty cases.

Before studying the nature and cause of the upper thoracic stomach a few notes on two examples of the lower thoracic stomach of cardiospasm will be given.

CASE II.

W. S., a man aged 50, complained of dysphagia of only two years' duration. His past history included four years in the trenches in the late war, and was good, apart from a tendency to a winter cough. He felt food arrested on a level with the sternum, and usually vomited his food after taking it. Cough aggravated the condition. Fluids were swallowed better than solids. He was a big man, and had lost much weight. His teeth were carious, but he had a fair colour. Nothing abnormal was found, except that auscultation revealed an interval of ten seconds between swallowing a drink and the entry of the fluid into the stomach. An opaque meal showed a fusiform swelling of the lower oesophagus (Fig. 4). A diagnosis of cardiospasm was made.

Operative Treatment.

Mikulicz's method, recently revived by Walton,[3] was followed. Walton gives a timely warning on the need for lavage and emptying of the stagnant oesophagus prior to operation. The stomach was opened and the index finger passed into the contracted cardiac orifice. The remaining digits were also introduced one by one till the resistance yielded. Thereafter he was able to swallow any kind of food; he put on weight, and worked. In April this year the symptoms recurred in association with bronchial trouble, and he vomits if he takes his food too quickly. Radiography revealed food passing, undelayed, through the lower oesophagus. A mercury bougie was used for the relief of his symptoms, and a radiogram shows it *in situ* (Fig. 5).

CASE III.

A. F., aged 48, whose trouble started gradually in 1924 with an occasional meal causing a block in the gullet, had a good past history, apart from nervous debility in 1912–14. He was specially affected by greasy foods and cold liquids. Severe retrosternal pain, often rising to a crisis, disappeared when his food passed a certain part, leaving him exhausted. On the morning after, he often vomited unaltered the food he had eaten the day before. Blood was never present. His radiogram, after an opaque meal, is reproduced as typical (Fig. 6). It shows a large lower thoracic stomach, with its epiphrenic contour characteristically smooth. The fine, oblique trickle of barium that alone escapes into the stomach is a constant feature of these cases. It is notable that the constriction is a tunnel about 1 inch long, and not a mere ring at the cardiac orifice. It corresponds to the normal so-called cardiac sphincter of the oesophagus (Hurst),[4] where that tube passes through the diaphragm. This appearance led Chevalier Jackson to apply the term "phrenospasm" in preference to "cardiospasm." With such a picture and history endoscopy seems as superfluous as with the one illustrating pharyngeal pouch.

Operative Treatment.

As in the former case, Mikulicz's digital dilatation was adopted, and the fingers were introduced up to the proximal interphalangeal joints, as advised by Walton. Convalescence was smooth, except for a slight messy discharge from an upper stitch hole, which lasted a few weeks and was possibly caused by a slight leakage from the gastrotomy. He is a stone heavier, and is still very pleased to swallow normally, not having had a decent meal for years prior to the operation.

The best alternative treatment is the use of mercury bougies of increasing diameter, as prescribed by Hurst; but for inveterate cases, such as the above, I am in favour of Mikulicz's measure, so ably endorsed by the skilful practice of Walton.[3]

Dilatation with the hydrostatic bag of Plummer[5] is open to the grave objection that during its use accidental rupture of the oesophagus can be less easily guarded against than with digital dilatation, and if rupture occurs it cannot be repaired at the time, as in the open method.

In the diagnosis of these maladies a detailed discussion of symptomatology is no longer necessary, since the radiogram taken routinely in dysphagia reveals a shadow characteristic both in site and in level. Thus it readily distinguishes the mild, transient, oesophageal spasm of functional troubles, thoracic aneurysm, and other mediastinal swellings. With the comparatively rapid formation of cancerous obstruction in the oesophagus little dilatation develops, and with this type of stricture the lower end of the barium column is uneven where it rests on the cancer.

NATURE AND ETIOLOGY.

A comparative study of the upper and lower types of thoracic stomach reveals more about both than when each is considered separately. Common to both is this important feature—namely, that the site of origin of each corresponds with a transition stage in alimentary transport. At the upper end is the change over from voluntary to automatic action, and at the lower, from the simple tubular oesophagus to the specialized function of the normal stomach.

It is notable, on examining the structure of their walls, that the epiphrenic stomach consists of the hypertrophied muscular coats of the oesophagus, and shows all the usual characteristics of muscular tubes proximal to an obstruction, while the pharyngeal pouch is merely a mucosal hernia with a thin areolar investment which hangs, as a blind bag, at the back of the main alimentary tube. For the lower stomach, dilatation of the oesophageal exit through the diaphragm is needed and adequate; in the upper pouch there is no constriction of the normal passage nor, if there were, could its dilatation remove the pouch that hangs outside the tube. These differences arise from the different structures and mechanisms of the entry and exit of the gullet. During deglutition the food bolus is squeezed from the mouth into the pharyngeal funnel. The longitudinal muscles—for example, the stylo-pharyngeus and the palato-pharyngeus—then raise this funnel at its upper end, and circular contraction squeezes the bolus into the narrower hypopharynx. Here the bolus is handed over to the involuntary peristalsis of the gullet. It is a region of stress, and also of inherent weakness. The signet of the cricoid ring forms a projecting hump anteriorly (Fig. A), while the rest of the circumference is encircled by the crico-pharyngeal portion of that compound muscle known as the inferior constrictor. Little longitudinal support is present, and the osseo-muscular ring, above described, receives the assault of the bolus descending into its smaller circumference from the roomier upper pharynx. It is a segment of strain owing to the narrowing lumen and to transition from voluntary to automatic transport of food. The subtle mechanism of adjustment may easily be thrown out of gear. Oral sepsis, pharyngitis, and oesophagitis, or even subphrenic ulceration, may raise the sensibility of the part and so set up protective hypertonus at the oesophageal doorway. Just outside the resistant door lies the inherently weak posterior area of the pharyngeal walls (Negus[6]) between the crico-pharyngeal and thyro-pharyngeal elements of the inferior constrictor. No actual congenital pouch exists. When the crico-pharyngeus fails to relax smoothly the pent-up ingesta press on the posterior pharyngeal wall, and the weak area yields. The bulge is directed down behind the oesophagus by gravity and mutual pressure of the thyroid gland and the bulkier

Fig. 4.—Dilated lower gullet of W. S.; case of cardiospasm. (1928.)

Fig. 5.—Mercury bougie entering stomach of W. S. (1930.)

Fig. 6.—Lower thoracic stomach of A. F.; case of cardiospasm.

pharynx above. When large enough a descending bolus will drop more readily into it than into the mouth of the oesophagus, which is displaced forwards and comes to look backwards. The oesophageal orifice is like the slit of a letter-box, past which the descending bolus readily drops, and falls instead into the open mouth of the pouch below (Fig. B). They are shown respectively as X and Y in the diagram.

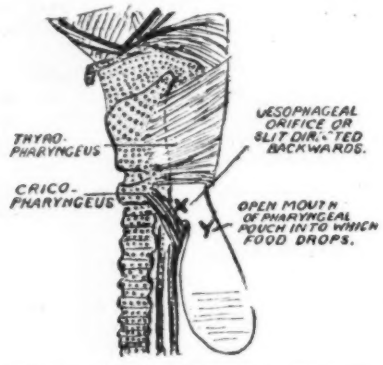

FIG. B.—Diagram showing pharyngeal pouch as a mucosal hernia.

That the diversion of the food is not caused by stricture of the oesophagus is proved, as in the case of W. H. C., by the immediate ease with which food passes as soon as the pouch is elevated from the thorax by operation and pulled out on the neck. The relation of X and Y is simply reversed by this manœuvre, and the orifice of the pouch now presents a narrow slit on the side of the pharyngeal wall, while the mouth below leads straight down the red lane to the stomach (Fig. C). Hence the rationale of the operations previously mentioned.

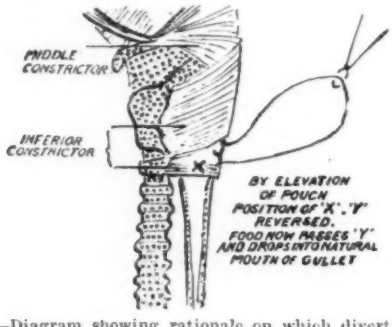
MIDDLE CONSTRICTOR
INFERIOR CONSTRICTOR
X
BY ELEVATION OF POUCH POSITION OF 'X', 'Y' REVERSED. FOOD NOW PASSES 'Y' AND DROPS INTO NATURAL MOUTH OF GULLET

FIG. C.—Diagram showing rationale on which diverticulectomy and diverticulopexy are based.

Development of the Lower Thoracic Stomach.

Just above the oesophageal exit arises the epiphrenic stomach involving, to varying heights, the lumen of the gullet above. Below the dilatation the lumen of the terminal inch of the gullet, when examined radiographically or by the sense of touch at operation, is but a tiny tunnel through which only a trickle of barium escapes. Valuable necropsies, such as that of Morley[7] on such a case, confirm the truth of this, and establish the absence of muscular hypertrophy at the constriction.

Numerous causes for this shrunken calibre have been advanced. Among them a defect in the neuro-muscular mechanism from birth has been suggested, but it is hard to attribute to a congenital cause a disease first manifesting itself in maturity. Walton[3] supports this view, citing rare cases that have occurred in the early years of life. He regards the phenomenon as parallel with the faulty co-ordination of neuro-muscular mechanism responsible for the megacolon of Hirschsprung's disease and infantile dilatation of the urinary system, which occur without mechanical blocks. Harold Brunn[8] supports the theory, and explains the late onset of the condition by the analogous latent period in cases of cervical rib..

The opinion of Mikulicz, to whom we owe the cure by digital dilatation, is expressed by the historic title given to the disease by him—namely, "cardiospasm." That spasm is a potent element in these cases, at least in the earlier stages, is evident from the sudden relief of obstruction, onward passage of food, and relief of pain observed in my case (A. F.) and in so many of the histories reported.

Plummer,[5] after his vast experience, supports the neurogenic theory. If accepted, the condition falls into line with that of congenital pyloric stenosis; but in that, if there is overaction of the muscle, it is certainly accompanied by hypertrophy. However, it is open to question whether an accommodative diminution in the size of the muscular opening in the diaphragm occurs *pari passu* with the diminished calibre of the gullet, and so inhibits the expected hyperplasia.

Hurst[4] remarks on the easy passage of the gentle mercury bougie, and affirms that there can be no positive spasm but mere non-relaxation of the sphincter ("achalasia"). This he attributes to degeneration of Auerbach's plexus, and has seen this in sections from such cases. If the theory is accepted, it involves the belief in some peculiar susceptibility of this segment of the alimentary tract to a poison apparently impotent elsewhere, for there is actual hypertrophy of the circular muscle immediately above the constriction. Certainly, in the inveterate case on which I operated, resistance was inelastic and caused by organic contracture. This may well be the late outcome of an achalasia of the incipient stages by accommodative contracture of the surrounding tissues and the fibrosis following chronic congestion induced by the superincumbent pseudo-stomach.

Soper and Cassidy[9] found, in 29 out of 60 cases, pathological lesions elsewhere—for example, gastro-duodenal ulcers, gall-stones, pleural contractures, and exophthalmic goitre. The last were improved by dilatation of the gullet. In my patient (W. S.) associated bronchial catarrh is noted. This conjunction affords a source for possible reflex dysfunctions of the cardiac sphincter. Greenwood,[10] from his own case, forcibly argues that dysfunction is due to imprudent feeding when hurried; unmasticated meals provoke irritability and hypertonus of the stomach inlet.

The title "phrenospasm" (Chevalier Jackson) lays the blame on the encircling diaphragm. Two criticisms of this explanation are suggested. The grip of a thin sheet of muscle would make a narrow groove on the gullet, but the findings are those of a tunnel obstruction an inch or more long. Morley remarks that phrenicotomy fails to relieve the impasse.

Finally, in the cadaver, I am impressed with the resistance offered by the half-encircling edge of the liver when passing a finger into the oesophagus. Clark[11] refers to this relationship. It is not, in my opinion, an adequate etiological factor, or signs of an impeded cardiac orifice would be manifested more often in conditions of hepatomegaly.

The theories mentioned broadly encourage the belief that there is defective neuro-muscular action at the oesophageal exit, but whether this is inherited, brought on by the irritation of imprudent feeding, reflex from distant foci of disease, or the result of local neural degeneration, further research must prove.

Summary.

It is very probable that a neuro-muscular dysfunction at susceptible transition points in the gullet raises the pressure of ingesta. This effect expresses itself by different forms of dilatations. The inherent weakness in the posterior aspect of the hypopharynx produces a hernia of the mucosa. By contrast, in the epiphrenic region, the oesophageal walls respond to the hypertension within by a typical uniform dilatation and hypertrophy. From such origins spring the substernal and epiphrenic stomachs. They are likely to continue to vex the human race, evoke the discernment of the doctor, elude prophylaxis, and require most skilful surgery to relieve them.

In pharyngeal pouch two-stage diverticulectomy is the best remedy, while cardiospasm, in the early stages, will respond to mere dilatation with bougies, which is best done with the aid of the radiographic screen. Where this fails,

Mikulicz's digital dilatation, by means of a gastrotomy, is necessary and effective. By reason of the comparative infrequency of these conditions, their deep situation, and the vital structures around them, their treatment calls for special care and skill.

I am indebted to Dr. F. J. Mayes for all the radiological work contributed to the diagnosis of my cases.

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TWO CASES OF BONE TUMOUR FROM ANCIENT EGYPT.

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(With Special Plate.)

Of the nature of the diseases which were present among the ancient Egyptians but little is known. Such specimens as have been found and examined have been generally derived from the Roman period of occupation, which is, comparatively speaking, late in the history of Egypt. Few pathological specimens have been obtained from the earlier dynastic periods.

Those so far described are mostly associated with the hard and resistant portions of the body—namely, the bony skeleton—as these parts, unless some form of mummification has been undertaken, best resist the destructive influence of time and climatic conditions. There have thus been preserved for us specimens which enable us to diagnose conditions which were then associated with the osseous system of the body. The supply of these interesting specimens, which reach us only too rarely, is mostly derived from the archaeologists, who in the course of their work observe abnormalities in the occupants of the graves and tombs which are being investigated from the archaeological point of view. To them, therefore, our thanks are due for the interest they take in this side issue of their work. We have to thank Mr. Guy Brunton for both the specimens described in these notes.

Osteosarcoma of the Femur.

The first of these specimens, that of a tumour of the femur, was found by Mr. Brunton in a grave at Mostagedda, south of Assiut, on the eastern side of the Nile, on the edge of the desert. The specimen belongs to the Ptolemaic period.

The bone is the right femur of a young person; the head of the bone and the trochanteric epiphyses have not become united, and are therefore absent. The photograph in the centre of the illustration (Fig. 1) gives a good impression of the condition of the bone; the neck of the femur is seen at the upper end of the specimen. The bone itself is 10 in. long, and the surrounding bony growth involves the greater part of it. The growth at its widest part is 3½ in. in diameter. In the fresh state the growth would have been considerably larger, because the delicate spicules of bone, which form the osseous portion of the tumour, are in large part broken off, while time and wear have produced a relatively smooth surface on the mass. The soft parts of the tumour have completely disappeared. In certain areas, however, the typical bone spicule formation of osteosarcoma is evident, while the skiagram on the left of the photograph in the illustration shows the typical architecture of the growth. The skiagram is obviously that of a long bone, of which the cortex, while rarefied, is unbroken and unchanged in width. The medullary space shows no expansion.

Extending outwards in a direction at right angles to the shaft are shadows arranged in the form of parallel striae. It will be observed that the extent is largest about the mid-point of the bone. We should suggest, from the radiographic appearance, it is a justifiable inference that a bone-forming sarcoma has originated about the mid-point of the femur. One can therefore definitely exclude such a condition as chronic osteomyelitis, which might perhaps be suggested by the gross naked-eye appearance of the specimen.

For comparison, a skiagram of a similar osteosarcoma of the humerus, occurring in a young Egyptian patient (Kasr-el-Aini Hospital, in-patient No. 449 of 1930) is reproduced. If allowance is made for the fact that in this skiagram the soft parts are shown, the similarity between it and the skiagram of the Ptolemaic bone is evident. We therefore venture to diagnose this tumour of the Ptolemaic period as an osteosarcoma, and infer that some 2,000 years ago this type of malignant growth was already present in the population of Egypt.

A search of the literature for records of similar cases shows that Ruffer,[1] in his "Studies in palaeopathology," described a tumour of the pelvis (dating from the Roman period) found in the catacombs of Kom-el-Shongafa in Alexandria. He observed that this tumour had expanded the iliac bone and consisted of a solid bony tumour containing cyst-like spaces. Although he suggests that it may be an osteosarcoma from which all soft parts have disappeared, it seems more probable to us, from the illustration, that it is an ossifying chondroma.

Tumour of the Mandible.

The second specimen, also sent to us by Mr. Brunton, was found by him in the same district in a grave of the pre-dynastic period. In all probability, therefore, its age is not less than 5,500 years. This tumour presumably is one of the earliest, if not the earliest, yet found amongst the former dwellers in the Nile Valley.

The tumour occurs in the left side of the mandible, and involves portions of both the horizontal and ascending rami. It extends from the region of the canine tooth to the angle of the jaw, the bone of which is expanded and reduced to a shell. The soft parts of the tumour have disappeared, leaving the cavity in which it lay widely open at the alveolar surface. This cavity is 3½ in. in length and 3/4 in. in depth, while the widest diameter is 1¼ in. From the floor of the cavity, and projecting from its sides, the remnants of some bony septa can still be seen. The teeth and soft parts are absent. The illustration (Fig. 2) shows on the left side a photograph, and on the right side a skiagram of the condition. In the latter may be seen the widening and thinning of the bone, while the cortex along the inferior border of the mandible is intact. For the production of the skiagram the rays were directed, relatively to the bone, at approximately the same angle as would be employed in the living subject.

The diagnosis of this condition cannot be definitely established, but the possibilities of a myeloid epulis, a dentigerous cyst, a simple cyst, or a fibroma should be considered; of these the first appears to be the most probable.

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SPONTANEOUS SUBARACHNOID HAEMORRHAGE, WITH KORSAKOFF'S PSYCHOSIS.

BY

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In the *British Medical Journal* of June 8th, 1929, Professor Arthur J. Hall described two cases of subarachnoid haemorrhage which developed Korsakoff's psychosis. The following case seems worth recording. The patient had recurrent haemorrhages, and from each succeeding haemorrhage the recovery was less complete. He developed Korsakoff's psychosis, and finally died seven days after the first haemorrhage. The diagnosis was confirmed at autopsy.

Clinical History.

The patient was a man aged 57, an old soldier, tall and strongly built, apparently in perfect health, with no history of any illness of importance. On July 29th he was rather unwell, complaining of headache; he vomited once, but recovered. The next evening he went to a whist drive, during which he suddenly collapsed on the floor. When first seen about an hour later he was very restless, throwing his arms and legs about, trying ineffectively to get up and to untie his hands. He made apt but rather curious statements, such as "I'm badly handicapped." He did not answer questions or seem to be aware of his surroundings. He was moving the left side of the body more than the right. The left pupil was rather large, the right small and less active to light. The knee-jerks were brisk, the right less so than the left. Both plantar reflexes were flexor. The heart appeared normal, and the arteries did not seem to be thickened. The urine contained a trace of albumin. During the next hour or two he became quieter and somewhat more rational, and answered questions. A diagnosis of subarachnoid haemorrhage was made.

By next morning the pulse rate had gradually fallen to 58; he was becoming more and more comatose; the respiration was of the Cheyne-Stokes type. The blood pressure was 90/45. He was still moving his limbs, but very slightly. The knee-jerks had become exaggerated; there was double ankle clonus and double extensor plantar response. Lumbar puncture was performed; the fluid was under considerable pressure, and blood-stained throughout. Directly after the lumbar puncture the exaggerated knee-jerks, ankle clonus, and extensor response disappeared. The blood pressure rose to 110/75, and the breathing became regular, but the pulse remained at 58. The left optic disc showed no papilloedema; the right disc was not seen on account of the contracted pupil. Four and a half hours after the lumbar puncture he became conscious, asked where he was, and said he would like some whisky. He was fairly quiet through the night, took fluids, and passed water spontaneously.

Examination of the cerebro-spinal fluid showed:

Red blood corpuscles	101,600 per c.mm.
White blood corpuscles	396 per c.mm.
Lymphocytes	320 per c.mm.
Polymorphs	76 per c.mm.
Total protein	1,000 mg. per 100 c.cm.
Globulin	++
Chlorides	740 mg. per 1,000 c.cm.
Sugar	Normal
Van den Bergh reaction ...	Delayed reaction 0.2 units
Wassermann reaction	Negative
Lange's colloidal gold test ...	0000023211

Next day, August 1st, he showed a definite Korsakoff psychosis. There was complete disorientation as to place and time, fairly good memory for past events, but fabrication of recent occurrences. In the evening the pulse began to fall. Lumbar puncture was again performed, and blood-stained fluid under pressure was withdrawn. The fluid rapidly became more blood-stained; he complained of headache, then suddenly began to breathe stertorously, while clonic movements of the hands and arms took place. The needle was quickly withdrawn. The patient was cold and sweating, the pulse very feeble, and double ankle clonus and extensor response were again present. The left pupil contracted, so that it was now equal to the right. The pulse and respiration gradually improved. He became very restless and destructive. He answered questions with "Yes" and "No," and obeyed orders for a few seconds, but soon began to try to dismember his bed again. He remained in this condition all night. The pulse was full and slow, sometimes falling to 40. The left pupil had dilated, and the ankle clonus and extensor response disappeared.

Next day Korsakoff's psychosis was well marked. His mind seemed to run on his army days. On being asked what he was doing, when he appeared to be reaching for something, he replied, "Collecting items." "Items of what?" "Stores." He was very suggestible, and was led into saying that he had been out for a walk that morning, and had met the Archbishop of Canterbury, who asked him how things were going.

At 11 p.m. he suddenly became comatose, with stertorous breathing. There was no apparent cause for this renewed haemorrhage. The breathing became very slow, consisting of deep gasps, which occurred every fifteen to twenty-five seconds. The pulse remained fairly good. The left pupil again contracted, and ankle clonus and extensor responses appeared; both were more marked on the left side. He vomited through his nose, and for a time there was a good deal of rattling in the throat. There was a left divergent squint for a short time, followed later by conjugate deviation to the left. About 12.30 a.m. he became very rigid, the legs extended, and the back arched. An anaesthetic was given to relax the extensor muscles of the back, and lumbar puncture was performed: 40 c.cm. of blood-stained fluid was withdrawn slowly; it was under considerable pressure. The breathing and pulse improved, and the rigidity did not recur.

Next morning, August 3rd, the coma was still deep. Respiration was quiet; the pupils were equally contracted; there was no squint or conjugate deviation; there was marked blepharospasm. The right optic disc showed papilloedema; the left disc was not clearly seen. The blood pressure was 135/90. The temperature, which had remained subnormal, rose to 100.6, and the pulse rose from 48 to 88. There was still a trace of albumin in the urine. There were a few rales at the bases of the lungs. The respiration rate was 24.

In view of the fact that lumbar puncture failed to relieve the coma, it was decided that decompression was justifiable. At 3.30 p.m. a right subtemporal decompression was performed; the dura mater was a little thickened; there was a layer of blood under the arachnoid membrane, and the brain bulged out somewhat. At the end of the operation the respiration and pulse were improved. The coma, however, continued unchanged. About midnight the respiration rate began to rise, and next morning reached 60. Signs of broncho-pneumonia developed, the patient became cyanosed, and died at 9.30 p.m. on August 4th.

Post-mortem Examination.

The brain weighed 2 lb. 2½ oz. The dura mater was thickened. The arachnoid was also thickened, especially over the right parietal region. Blood was diffused all over the surface of the brain between the arachnoid and the pia mater; when the pia-arachnoid was stripped off the brain the convolutions were seen to be a little flattened; the brain substance was not congested, and there were no haemorrhages into it. There was a large clot of blood at the base of the brain in the region of the circle of Willis, around the medulla and pons, between the medulla and cerebellum, and in the right Sylvian fissure. The circle of Willis and its branches showed a considerable amount of thickening; there was one fusiform aneurysm, and one small, thin-walled, saccular aneurysm containing clot; this was possibly the site of the haemorrhage. The fluid in the lateral ventricles was slightly stained with blood; in the wall of the anterior horn of the left lateral ventricle there was a small, yellowish, softened area.

Microscopical section of the brain substance showed no abnormality. Branches of the circle of Willis showed considerable patchy proliferation of the intima, which in many places was thickly infiltrated in its outer layers with round cells. There was no marked thickening or splitting of the elastic laminae. The media was not thickened, but there were areas of round-celled infiltration, which was also well marked in the adventitia.

The heart was large, weighing 17½ oz. There were some fatty patches under the endocardium, especially at the bases of the papillary muscles. The mitral and tricuspid valves were a little thickened. The condition of the coronary arteries was surprisingly good, and the aorta was unusually free from atheroma.

The lungs were congested and oedematous. In the left lower lobe there were patches of broncho-pneumonia, and pus could be squeezed out of the small bronchi. The left kidney showed a depressed area resembling an old infarct. The cortex of both was a little diminished, and the surface slightly granular. To the naked eye there was no evidence of arterio-sclerosis. Microscopical sections showed patchy areas of fibrosis, with atrophy of the epithelium of the tubules; there was very little cellular infiltration; many of the arterioles showed marked reduction, or even obliteration, of their lumen, due to proliferation of the intima, with no cuffing with lymphocytes. Other parts of the kidneys showed no interstitial change, but some cloudy swelling of the tubular epithelium.

The evidence is not sufficient to justify a certain diagnosis, but in spite of the negative Wassermann reaction and the undoubted arterio-sclerotic changes in the kidneys it seems probable that the changes in the membranes and vessels of the brain were due to syphilis, and that the

haemorrhage was due to the rupture of a small aneurysm of syphilitic origin on one of the branches of the circle of Willis.

The sudden appearance of pupillary and pyramidal tract signs with each fresh haemorrhage, and their rapid disappearance after the relief of pressure by lumbar puncture, was an interesting feature of the case.

I have to thank Dr. J. L. Livingstone and Mr. J. B. Hunter for their permission to record this case.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RUPTURED LIVER: SUTURE.

RUPTURE of the liver does not commonly come to operation, as, in the first place, it is not very frequently seen; and in the second place, when it does occur, it is either so severe and complicated by other injuries as to be rapidly fatal, or else it is a small subcapsular tear not requiring operative intervention. An interesting point about the case reported below was the interval between the accident and the onset of abdominal pain, during which the patient felt comparatively well. There was also surprisingly little shock consequent on such a severe injury.

A builder, aged 30, was admitted to hospital on March 9th after a cycling accident, in which he had a head-on collision with a car. He was struck in the abdomen (he thought, by the mudguard of the car), and immediately afterwards got up unaided and felt no pain. Ten minutes later, however, he was seized with severe abdominal pain, unaccompanied by faintness, nausea, or vomiting.

On admission the pulse was 64, temperature normal, and there were no signs of shock; there was some rigidity and tenderness in the right upper quadrant of the abdomen. The patient had vomited once since the accident. The pulse proceeded to rise slowly but steadily, and rupture of the liver was diagnosed. When I saw him, twenty-four hours after the accident, the pulse was 100, rigidity and tenderness on the right side were marked; there were no signs of free fluid in the abdomen, but the patient looked strained, and was still complaining of pain.

Laparotomy was performed through a right paramedian incision, enlarged by transverse division of the right rectus. There was a considerable amount of free blood in the peritoneum, and a rent was found in the right lobe of the liver, extending from the edge for four inches on the upper surface and six inches on the lower, steadily oozing blood. The tear was very difficult to get at, being in the posterior axillary line, but six or seven interrupted catgut stitches were inserted, bringing the edges into apposition. No other visceral injuries were present. The wound was closed in the usual manner. Nine days later a biliary fistula appeared, and persisted for four weeks, but ultimately healed, and the man was discharged fit.

I am indebted to the staff of the Farnham Infirmary for the opportunity to operate on this case.

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A PATHOLOGICAL MONOCYTE.

THE leucoblast was described by Pappenheim as being a large cell, with a nucleus resembling that of a myelocyte; the basophil cytoplasm is often rich in azur granules, coarser and darker than any ever seen in the lymphocyte or monocyte. Its presence in the blood is always pathological; it is invariably associated with serious disturbance of the marrow, and all the evidence points to its originating in the marrow. Since it is numerous only in myelaemia, Pappenheim assumed that it belonged to the neutrophil series. In the leucocytosis of pneumonia a few myelocytes appear, and, in a severe case, even one or two premyelocytes, but no leucoblast is seen. For this and other reasons, he regarded the leucoblast as being more immature than the premyelocyte.

In pernicious anaemia, however, leucoblasts may be present when there are few myelocytes in the blood and no premyelocytes. Pappenheim supposed, therefore, that in certain pathological conditions this very immature cell was forced into the blood; that (to account for the absence of premyelocytes) onward development then ceased, and that it retrogressed into a large mononuclear, the so-called leucoblastic monocyte. Thus he believed that in the marrow his leucoblast preceded the premyelocyte in the direct line of neutrophil descent, but that, pathologically, it entered the blood to become a monocyte.

These facts afford ample evidence of the marrow origin of the leucoblast, but not for its neutrophil descent. On the contrary, in the glandular fever of children (*British Medical Journal*, 1927, vol. i, p. 1056), it may enter the circulation owing to the specific action of the toxin causing monocytosis. This fact and the appearance of the cell in the stained film suggest that it is a monocyte. Pappenheim admitted that it was often difficult to distinguish the leucoblast from a monocyte; if it is really such a cell it is always pathological, and the simplest explanation is that it is an immature monocyte (premonocyte) derived from a lymphoid marrow cell (myelomonoblast). This would explain its emergence in malignant disease. In internal cancer (liver, lung, kidney) there is usually a considerable leucocytosis of neutrophilic cells with a few myelocytes, and monocytosis with a few pneumonocytes. Because the usual stains do not show these cells I abandoned them ten years ago in favour of the following procedure, which I consider the simplest, cheapest, and best blood-staining method for general purposes.

Manson's methylene blue contains 2 per cent. of the dye in a 5 per cent. solution of borax in distilled water; the water should be boiling when the borax is added, but have been removed from the flame. This stock solution may be made by any druggist, and will keep for some years. It is rendered polychrome in small quantities as required, by boiling about 10 c.cm in a clean test tube gently over a small flame for one minute. Fresh solutions require this boiling to be repeated three times, at intervals of a few hours; older solutions are already slightly polychrome, and one boiling may be sufficient, after which the polychrome fluid is stored by itself in a small bottle, preferably pipette stoppered, and will keep good for months. A similar bottle contains 1 per cent. eosin solution in distilled water.

Into one ounce of distilled water I put four drops of the eosin and two drops of the polychrome solution, and mix. Films are fixed in methyl alcohol or Jenner's stain for three minutes or longer, and are then stained for half an hour to two hours, washing briefly in distilled water. It is convenient to have two small wide-mouthed bottles with glass stoppers. One contains about 15 c.cm. of fixative, and slides are dropped in to be fixed by tilting the bottle sideways. It may be used for months, as there is no waste. The other bottle holds the staining fluid, and the fixed films are transferred to it with forceps. It is not necessary to cleanse the staining bottle every time, but only to renew the staining fluid immediately before each examination.

Ealing, W. ROBERT CRAIK, M.D.

IDIOPATHIC HAEMORRHAGE IN THE NEWBORN.

THE value of injecting parental blood in cases of melaena neonatorum seems to be insufficiently recognized, and the following clinical details of such a case may therefore be worth publication.

A multipara gave birth to a girl without instrumental intervention, the presentation being a vertex L.O.A. After an easy labour, lasting only a few hours, the baby was born, apparently perfectly healthy. The baby became restless thirty hours later, and was found to have passed a tarry black stool; this was about three ounces in bulk, and was covered with patches of bright red blood. A diagnosis of melaena neonatorum was accordingly made, and 5 c.cm. of fresh blood, removed from a vein in the mother's arm, were injected immediately into the baby's buttock at 8 a.m. Subsequent haemorrhages occurred at 12.30 p.m. and 5.15 p.m. on the same day. At 7 p.m. a further 5 c.cm. of the mother's blood was injected, followed by 1 c.cm. of colloidal calcium into the thigh muscles, the calcium being repeated daily for a week. By the end of the first day the baby was plainly anaemic, but only one other bleeding occurred—on the day following the first injection—and that was only a relatively small loss. Complete recovery has ensued, and the child is now apparently in excellent health. There was no history of haemophilia or purpura in the family.

We are prompted to publish this case because none of our textbooks gave any help, either in diagnosis or treatment, when we referred to them after having instituted treatment, except *Nelson's Loose-Leaf Medicine*. Our treatment at first was based on memories of a case reported in the *British Medical Journal* (January 12th, 1929, p. 68).

J. M. BOYD, B.A., M.B., Ch.B.
Wigan. J. A. ELLIOT, M.B., Ch.B.

Reviews.

A SYSTEM OF BACTERIOLOGY.

THREE volumes of the nine which will eventually constitute the extensive treatise known as *A System of Bacteriology in Relation to Medicine* have already been reviewed in these columns. The fourth to appear, volume v,[1] loses nothing in comparison with its predecessors, and will add very materially to the value of this work, which is filling such a long-felt want.

This volume opens with a chapter on glanders by F. C. Minett. The subject is perhaps of no very great interest to medical men because of the rarity of this disease in man, but they will read with interest of the satisfactory measures by which their veterinary colleagues have succeeded in controlling, and in some countries exterminating, the disease. Up to 1907 about 1,950 horses on an average were annually affected in this country; since 1926 no cases have been reported. Following this is a short but most interesting account of melioidosis by W. Fletcher, whose name is intimately associated with our knowledge of this glanders-like disease and its causal organism, *B. whitmori*. The next chapter, by R. T. Hewlett, deals with the important subject of the diphtheria bacillus and diphtheroid organisms. The author freely acknowledges his indebtedness to the Medical Research Council's monograph on this subject published in 1923, which Professor Bulloch rightly refers to as the most complete account extant. Naturally the information contained in the monograph has had to be condensed for the purpose of this chapter and brought up to date where necessary; the result is a most useful and readable account of the subject. The historical note contains no mention of the work of Ramon, which is perhaps a pity, for in the opinion of many, particularly our French colleagues, this constitutes a landmark in the recent history of diphtheria.

Chapter iv, which occupies almost half the volume, is devoted to the question of *Bacillus tuberculosis*. The many aspects of such an extensive subject as this could hardly receive adequate treatment from a single author, and as many as nine have contributed to this most excellent and valuable account. A. S. Griffith is one of the chief contributors dealing with the morphology and cultivation of the bacillus, experimental tuberculosis, and the spontaneous disease in man and animals. We have here the fruits of years of investigation admirably presented. The section on allergy and immunity by W. H. Tytler is good. This is a difficult question to deal with. There is a wealth of observed facts—some of which are in conflict—which have had various interpretations put on them. Tytler has given us a clear and well-balanced account for which those who are unable to keep abreast of the immense literature which has grown up round this subject will be most grateful. This chapter contains, in addition, valuable sections on the laboratory diagnosis of tuberculosis by J. McIntosh and L. E. H. Whitby, the therapeutic use of tuberculin by A. Fleming, the preparation and standardization of this substance by C. C. Okell, and terminates with an account of chemotherapy in tuberculosis by S. L. Cummins.

Following this are chapters dealing with the other acid-fast organisms; tuberculosis in cold-blooded animals by A. S. Griffith, Johne's disease by A. W. Stableforth, leprosy by E. Muir, and the non-pathogenic acid-fast bacteria by R. St. John Brooks. Of these the account of leprosy is perhaps the best, and although the section on cultivation loses some of its value, since it was written prior to the recent and apparently successful work of Shiga, it is still of interest as a sound and critical survey of past efforts in this direction. The Brucella group is dealt with by J. T. Duncan, L. E. H. Whitby, and A. D. McEwen. The evidence for the identity of *B. melitensis* and *B. abortus* is carefully considered, and the danger of diagnosing *B. abortus* infection in man by simple agglutination tests is duly stressed. Much work remains to be done in this group, and the lines along which investigation is required are pointed out. The volume terminates with chapters on *B. anthracis* by F. W. Eurich and R. T. Hewlett, the non-pathogenic spore-bearing aerobes by R. St. John Brooks, and two most interesting but short accounts of tularemia and the barbonella by J. C. C. Ledingham and J. A. W. McCluskie respectively.

[1] *A System of Bacteriology in Relation to Medicine.* Medical Research Council. Vol. v. London: H.M. Stationery Office. 1930. (Sup. roy. 8vo, pp. 505. Single volumes £1 1s. net; set of nine volumes £8 8s. net.)

RHEUMATISM.

THE treatise by Professor JULIUS BAUER of Vienna on "So-called Rheumatism"[2] cannot fail to be of interest to those who are concerned in the "campaign against rheumatism" in all countries. It should be of assistance to the insurance practitioner, and above all to those who are in charge of centres for the investigation and treatment of rheumatic diseases. Professor Bauer is himself the principal medical officer of a large sickness insurance fund. He realizes the great difficulty of choosing cases for special treatment which follows from the universal want of precise differential diagnosis. Modern medicine has done little to remedy the "confusion of tongues," and it will, he says, be necessary to "scour out the collecting basin" into which the whole mass is at present poured. His own experience in following up large numbers of cases after various forms of treatment has, in the meantime, led him to certain conclusions.

What are the true stigmata of rheumatism? Historical descriptive words should not be altogether distrusted. The catarrhus articularis of the seventeenth century, and the much earlier conception which regarded rheumatism, like all chills and colds, as "simply a flux," have their element of truth, with infection, metabolic disturbance, and over-fatigue as sometimes dominant influences. But it is difficult to find, as yet, a common denominator. Atmospheric cold and damp, affecting not only the skin and surface layers but the joints, is a ruling etiological factor. In sensitive persons it produces various immediate effects, as in neuralgias and myalgias, torticollis, and Bell's paralysis and paroxysmal haemoglobinuria. The secondary reflex and humoral effects of cold are not less remarkable, such as diminution of opsonins, phagocytosis and bacteriolysis, diuresis, albuminuria, oedema, urticaria, cardiovascular spasm. Strauss has shown that exposure to cold causes an alteration in the skin tissues, with absorption of substances which disturb colloidal equilibrium, and that sensitization so produced may be connected with morbid sensitiveness to cold. Of exogenous factors, infection, however, plays the greatest part in causation. Infection must be assumed in inflammatory conditions of the synovia, which characterize the most serious forms of rheumatic disease, like rheumatic fever, as well as in primary chronic polyarthritis, although a constitutional and possibly allergic factor may be present in these diseases. On the other hand, the very common degenerative conditions are not infective, although often followed by secondary reactive inflammations. There is no proof that endogenous—for example, metabolic—errors can of themselves cause an inflammatory arthritis, although the author admits that "an endogenous factor proper to the organism seems to be a necessary factor in the disease." Anomalies of metabolism may be either conditional and paratypic, or present *ab ovo* and genotypic. It is clear that in the causation of the rheumatic diseases they operate in connexion with exogenous factors. He considers that the endocrine factor is much overrated, although answerable for many of the polyalgias, as in mechanical irritation of the peripheral nerve-endings in obesity.

With regard to treatment, the discriminating use of protein therapy is commended. Baths appear to act as counter-irritants, affording in effect another form of reiztherapie, but their action has never been fully explained—thermal, mechanical, on the skin and nervous tissues, by absorption, and psychic. It is worthy of remark that at the present time the oldest of remedies,

[2] *Der sogenannte Rheumatismus.* Von Dr. Julius Bauer. *Medizinische Praxis*, Band vii. Dresden und Leipzig: T. Steinkopff. 1929. (6 × 8½, pp. vi + 142; 16 figures, 6 plates. R.M.9.)

which are physical, and also the commonest of diseases, the rheumatic, are both urgently in need of investigation, not so much by laboratory experiment—which is indeed difficult or impossible—as by accurate observation of individuals undergoing treatment. Not a few students of the rheumatisms prevalent in northern countries have that double objective in view. To attain success specialists in all forms of treatment are needed. Freund's opinion is quoted, that many cases of primary chronic polyarthritis are intolerant of heat, and examples are given showing the difficulty of advising patients in the use of baths, and of "sheltering them from bad effects." A practical rule of no little importance is noted: that the functional possibilities of joints must be carefully conserved, by movement given at times of freedom from pain. For this purpose baths and local applications of heat, by hot air or mud or diathermy, may be of much assistance.

THE IMPORTANCE OF A BIOLOGICAL SOCIOLOGY.

IT is not hard to identify "A SURGEON," who reveals his initials as C. J. B., writes from Leicester, and gives the titles and occasions of his thirteen *Essays and Addresses*[3] written between 1911 and 1929. Throughout them runs the *motif* of an earnest desire to improve the moral, social, and physical state of the race. The method of presentation is thoughtful, free from emotional appeal, and based on the application of biological principles. As shown in his Francis Galton Memorial Lecture given in 1928 before the Eugenics Society, on "Some causes of racial decay," it is important to bring home to the minds of statesmen, and indeed of everyone, the realization that present sociological methods are not yet based on sound biological foundations. Another urgent need is for a national census of quality as well as of quantity, so as to render possible reliable comparisons of physical and mental qualities now and at some future date. The proper attitude of the State and of society in general to diseases and disabilities which are due to unphysiological living and anti-social conduct, such as alcoholism and venereal disease, is discussed, and the author insists on the need for educating the public so as to create a "national health conscience" which recognizes that it is wrong to be ill if disease is avoidable. The latest of the addresses in this volume, where every article is interesting, is that on the prevention of mental deficiency, given last November, and here again education of the public is clearly desirable to obtain united and widespread efforts for improvement.

GRAY'S "ANATOMY."

THE twenty-fourth edition of Gray's *Anatomy*[4] would be noteworthy if for no other reason than that it has appeared under a new editor, Professor T. B. JOHNSTON, in succession to Professor R. Howden, who has been responsible, partly or entirely, for no fewer than nine editions issued during the last twenty-five years. Although a textbook of such maturity and popularity tends naturally to become stereotyped, the progress of the subject cannot fail to offer opportunities for effecting improvements either by adding to or amending the work; and such opportunities the new editor has seized nowhere better than in the section on embryology. This section he has thoroughly revised in the light of recent research, having amplified it by twenty-nine pages of text, added thirteen new figures, and so modified several figures that have been retained as to make them less diagrammatic and more realistic. In other sections we are glad to note that he has made no attempt to sacrifice unduly the semi-diagrammatic and topographical figures the presence of which has always been one of the most helpful features of the work. Professor Johnston's chief and most successful contribution seems to us to be in the effort he has made to elucidate the structure of those regions of the body which present special difficulty to the student. We would cite as examples such figures as those showing the structure of the wall of the buccopharynx as seen from within, the relations of the posterior belly of the digastric muscle, and the interior of the lesser sac of the peritoneum. Less successful is Figure 595, illustrating the relations of the subclavian artery at the root of the neck, though the failure is due in some measure to the inverted position the figure occupies on the page.

Despite its many excellencies the work is not entirely above criticism. We suggest, for example, that the description of the fibular attachment of the calcaneo-fibular ligament should be made to conform with the very accurate representation in Figures 539 and 543, that the tendon of the extensor carpi radialis brevis should be credited with an attachment to the base of both the second and third metacarpal bones, and that attention might be drawn to the groove—only a little, if at all, less distinct than that produced by the tendon of the peroneus longus on the under-surface of the cuboid—which the tendon of the tibialis posticus makes on the under-surface of the scaphoid. We feel no little reluctance in drawing attention to what are, after all, small matters; nor should we have done so but for the fact that Gray's *Anatomy* is by way of being a national institution. It is a great pleasure to feel that in the hands of Professor Johnston the work will continue to keep the proud position it has held for the better part of a century—the most popular textbook on anatomy in the language.

CONGENITAL TALIPES.

CONGENITAL club-foot has had many essays and books devoted to its elucidation in the past hundred years, but the last word has yet to be said. The work of Mr. E. P. BROCKMAN,[5] which earned the Robert Jones gold medal of the British Orthopaedic Association for 1928, should go far to settle some moot questions. Mr. Brockman, in 110 pages, sums up adequately the history of the subject, describes and discusses the normal anatomy of the leg and foot, and the pathological anatomy of club-foot. As to the vexed question of the etiology of ordinary congenital club-foot he summarizes his remarks thus:

> "Congenital club-foot is caused by a primary failure in development to their full state of all the tissues of the foot. This involves the bones, the ligaments, and the muscles. We know nothing of the influence that controls the development of the fertilized ovum, nor do we know why it should sometimes fail either partially or completely."

To this we would add that all those who have had much experience of the treatment of congenital talipes equino-varus must agree that this developmental defect comes out clearly in the tendency of an apparently cured club-foot to relapse as growth goes on, a tendency which seems to be caused by an inherent vice of development which is continually reasserting the deformed type. The explanation of this "relapse" offered by Mr. Brockman and others—namely, that it is really due to a primary failure to alter the positions of the bones of the hind foot, seems to us rather to beg the question, by its assumption that such failure has escaped the notice of surgeons thoroughly familiar with deformity and normality. With this, and some minor exceptions, we agree with Mr. Brockman's conclusions.

NOTES ON BOOKS.

IN *An Hour on Health*,[6] written in a particularly pleasant style, Dr. MORRIS FISHBEIN, editor of the *Journal of the American Medical Association*, points the way to a happy life free from disease. The advice given is so clear that many medical men will find it a useful handbook for patients anxious to attain length of days on sound lines. In a short chapter devoid of technicalities on "Medicine in our changing world" it is shown that the practical applications of experimental research have transformed the great aim of modern medicine from the cure of disease to its prevention, and given the

[3] *Essays and Addresses, Sociological, Biological, and Psychological.* By A Surgeon. London: H. K. Lewis and Co., Ltd. 1930. (Demy 8vo, pp. xiii + 277. 10s. 6d. net.)

[4] *Anatomy: Descriptive and Applied.* By Henry Gray, F.R.S., F.R.C.S. Twenty-fourth edition. Edited by T. B. Johnston, M.B., Ch.B. London and New York: Longmans, Green and Co. 1930. (Roy. 8vo, pp. xvi + 1466; 1,301 figures. 42s. net.)

[5] *Congenital Club-foot.* By E. P. Brockman, M.Chir., F.R.C.S. Bristol: J. Wright and Sons, Ltd.; London: Simpkin Marshall, Ltd. 1930. (Med. 8vo, pp. 110; 92 figures. 10s. 6d. net.)

[6] *An Hour on Health.* By Morris Fishbein, M.D. The One Hour Series. London: J. B. Lippincott Company. 1929. (4½ × 5½, pp. 158. 4s. 6d. net.)

medical man a new relation to the social order. In a graphic passage, Dr. Fishbein notes the change that is coming over mankind: "the big-boned, muscular, prognathic, hairy, stupid ape-man has given way to the smooth-skinned, bald, slightly corpulent, spindle-legged, and thin-armed mental dynamo. For the sharp-nosed, keen-eared savage with quick vision, sensitive touch, and rapid response substitute the alert-brained, heavily be-spectacled, false-toothed director behind a desk." Perhaps the position of modern preventive medicine cannot be expressed better than by the admirable dictum that "our hygiene is changing from a moral to a scientific hygiene." Throughout the volume runs the strong current of common sense that should counteract the fads, fancies, and quackery which mankind delights in and against which Dr. Fishbein has elsewhere waged a vigorous war.

We have now received the fourth volume of a series of publications on medical radiology,[7] compiled by various German writers; notices of the three previous ones appeared on December 25th, 1926 (p. 1231), and August 25th, 1928 (p. 345). The present volume deals particularly with the application of radiology to internal diseases, and the subjects considered include its employment in detecting variations in the position and form of the stomach; examination of the upper urinary passages as a means of diagnosing abdominal tumours; the relation of ultra-violet light and vitamin D to rickets; the causation of pigmentation and the part it plays in protecting the body against the evil effects of certain irritating rays; light erythema; the histology of uterine carcinoma in its relation to radiotherapy; the biological principles concerned in the treatment of cancer; radiology in connexion with operations on the stomach; and diathermy in the treatment of disorders of the throat, nose, and ear. This volume, like its predecessors, is freely illustrated; the indexes are good, and the bibliography is extensive.

Miss GULLAN'S well-known *Theory and Practice of Nursing*[8] has reached its third edition, and has been brought up to date. It is a pity that the new preface should contain two misprints, one in particular referring to the appendixes being most unfortunate. The appendix in question (No. 3, and not No. 4) deals with "Food tests and digests," whatever that may mean, and should either be omitted altogether or included as an integral part of the chapter on digestion. Apart from this comparatively small point the book can be warmly commended to all nurses for its sound teaching, and the chapter on private nursing should be thoroughly mastered.

Presumably there is a lay public which likes its flesh made to creep; and for that public Dr. NICHOLAS KOPELOFF, research associate in bacteriology in New York, has produced an imposing volume, *Man vs. Microbes*.[9] He describes it as a "comprehensive volume on microbes for the intelligent layman; an aspect of the human adventure too long neglected." He does not neglect to describe the beneficent germs which have been harnessed by man to agriculture and industry. The book is written in a lively manner, and includes accounts of all the more important micro-organisms and of the diseases they produce. But it is perhaps doubtful whether it is necessary to quote Chapin's diatribe against saliva in connexion with the disease diphtheria. What is the poor layman to do when he learns that "the cook spreads his saliva on the muffins and rolls, the waitress infects the glasses and spoons, the reader moistens the pages of his book; everyone is busily engaged in the distribution of saliva"? Dr. Kopeloff does not emphasize sufficiently the curious fact that we do not all contract diphtheria.

Medical men have long desired more authoritative information on the frankly cosmetic side of dermatology, and they owe a debt of gratitude to Messrs. REDGROVE and FOAN, who, having previously dealt with hair dyes and perfumes, now give us a volume revealing the secrets of *Paint, Powder, and Patches*.[10] There is not quite so much information of medical interest in this as in their former book entitled *Blonde or Brunette?*, as they have approached the subject more from the theatrical and cinema side, but there is much that will be useful for dermatologists to know about face powders, creams, and lipsticks; and the wonderful transformations possible by means of effective "make-up" have a fascination for many besides professional mimes.

[7] *Ergebnisse der medizinischen Strahlenforschung.* Herausgegeben von H. Holfelder, H. Holthusen, O. Jüngling, H. Martius, H. R. Schinz. Band iv. Leipzig: G. Thieme. 1930. (Sup. roy. 8vo, pp. 694; 395 figures. M.71.)

[8] *Theory and Practice of Nursing.* By M. A. Gullan, S.R.N. Third edition. London: H. K. Lewis and Co., Ltd. 1930. (Demy 8vo, pp. xvi + 238; 3 figures. 9s. net.)

[9] *Man vs. Microbes.* By Nicholas Kopeloff. New York and London: A. A. Knopf. 1930. (6 × 9¼, pp. xxiii + 311 + viii; 130 figures. 21s.)

[10] *Paint, Powder, and Patches.* By H. Stanley Redgrove, B.Sc., A.I.C., and Gilbert A. Foan. London: William Heinemann (Medical Books) Ltd. 1930. (Demy 8vo, pp. xi + 170; 16 plates. 7s. 6d. net.)

ST. DUNSTAN'S MASSEURS.

ADDRESS BY SIR THOMAS HORDER ON PHYSIOTHERAPY.

THE blinded soldier-masseurs of St. Dunstan's held their annual luncheon and reunion at the Langham Hotel on July 25th, when they were addressed by Sir THOMAS HORDER, Bt. The Prince of Wales sent a message saying that he was very pleased to hear of the great success which had been attained by more than one hundred blinded soldiers who had been trained in the practice of massage and electrotherapy.

Captain IAN FRASER, chairman of the executive council of St. Dunstan's, who presided, said how much St. Dunstan's and the blinded soldiers under its care were indebted to the medical profession as a whole. Whenever and wherever St. Dunstan's had called upon consultants, specialists, or general practitioners, these had given their assistance, either voluntarily or at very much reduced fees, and this represented a really generous contribution towards St. Dunstan's work. Special kindness and consideration had been shown also by hospitals, particularly their out-patient departments. Although there was actuarial assurance that the lives of blinded soldiers as a whole were likely to be of normal duration, it was nevertheless a fact that a considerable proportion of them suffered a good deal from the direct and indirect effects of their wounds. He mentioned that figures prepared by Sir Arnold Lawson and Mr. A. W. Ormond, who, between them, had seen over 1,800 St. Dunstan's cases, showed that in 41 per cent. the blindness was due to wounds caused by high explosives, in 29 per cent. to bullet wounds, and in 3 per cent. to other traumatic causes, while in the remaining 27 per cent. it was due to non-traumatic causes, such as detachment of the retina, cataract, optic atrophy, and aggravation of latent conditions as a result of hardship. Not more than one or two men, to his knowledge, had their sight materially affected by gas.

Sir THOMAS HORDER said that he spoke as one who was peculiarly interested in physiotherapy, meaning by that term the various methods of treating patients which began by means of the human hand. The men to whom he was speaking had a special adaptability for this method of treatment. The deprivation of one faculty made the others more acute, while those who had, as it was termed, "all their faculties" tended to drift into using them inefficiently. The blind were obviously auditives, but those he was addressing were making themselves into very skilled tactualists. One thing which he urged them to do was to state quite clearly, and in every legitimate way, that they were certified. The public should know that they had a definite and recognized foundation for what they professed.

Although physiotherapy was a very progressive form of therapeutics, Sir Thomas Horder said, he himself was rather conservative in his choice of methods. He preferred methods well tried and understood to those new ones which made an appeal to the mysterious in the mind of the patient. He also preferred simple methods to complex; he had a great faith in the possibilities of the human hand, and distrusted machinery. Some patients had a pathetic belief that a machine could not lie; they wanted, for example, not the physician's assessment of their degree of cardiac insufficiency, but an electrocardiogram, forgetting, of course, that whatever was ascertained, whether by the machine or by the senses, had to be interpreted by the experienced judgement. He believed that an immense opportunity for advance in physiotherapy lay in the direction of massage and manipulation. Masseurs were tempted sometimes to substitute for physiological and voluntary movements and functions "passive movements," as they were termed. They attempted to do for the patient's locomotor apparatus what sometimes members of the medical profession attempted to do for the patient in general—namely, to lead his life for him. It was imperative in trying to restore the functions which were in abeyance not to introduce substitutes for what the patient should do for himself. There were cases in which the whole movement must be entirely passive to begin with—in certain affections of the heart, for example—but it was most important to recognize the stage when the patient might begin to participate voluntarily in the movement himself. No amount of massage or electrical stimulation had the same physiological value as the natural movements carried out by the patient under guidance and supervision.

Sir Thomas Horder also reminded his audience that their work, like that of the medical practitioner, was based on science. The temptation to "humbug" a patient—and there were patients who liked to be "humbugged"—must be resisted. Massage was too valuable, too integral a part of physiotherapy to be placed in the background while one talked to the patient of bones out of place, of which there was no evidence, and so forth. Many of them could double their incomes if they were prepared to substitute for good honest scientific work a certain amount of humbug. Finally, he spoke of the moral effect of the masseur's work. The encouraging manner of the masseur was of value, quite apart from what he did with his hands. Not seldom the masseur knew more about the patient than the doctor did, but he should not neglect the doctor's point of view. Lack of co-operation with his medical supervisor meant failure. If the masseur discovered anything which the doctor had not appreciated he should not tell the patient, but should tell the doctor, who would value any information given in the right spirit. Many masseurs aimed at too rapid results. They forgot that all physical methods were educational in nature. Just as a kind of mental dyspepsia could be produced by forcing the mind too quickly, so irritation and fatigue resulted from an over-keen physiotherapy. He himself was often content to find at the end of a week a result which the masseur had been disappointed not to have got within twenty-four hours. Often a masseur's work might be spoilt by disregard of the patient's psychology. One of the most frequent complaints was the perpetual talk in which many masseurs indulged while giving the treatment. He himself often employed blind masseurs, but if he had a chance of employing dumb ones he would be tempted to give all his work to them.

CORRELATION BETWEEN INTELLIGENCE TESTS AND WRITTEN AND PRACTICAL EXAMINATIONS.

BY

R. C. GARRY, M.B.

(From the Institute of Physiology, The University, Glasgow.)

ACCESS to marks gained by second-year medical students, both in academic examinations during the ordinary course of their work in physiology and in a series of intelligence tests, gave an opportunity of finding out how far skill in the one was correlated with skill in the other.

The usual examination paper in physiology calls for simple reproduction of facts which have been presented to the candidates at some previous date. To gain a good mark in such an examination it is only necessary to possess a retentive memory and a fair degree of steady application to the assimilation of facts. Intelligence tests are more or less empirical productions, yet they usually differ from the common form of examination in demanding something more than reproduction of acquired information. It is common knowledge that the type of student who excels in written examinations may fail lamentably when confronted with practical work; and that the results of intelligence tests are often at variance with the results gained by the usual methods of examination. Practical work, though of necessity greatly influenced by what is taught, makes a definite demand on qualities which can be acquired neither from books nor from teaching, nor even from actual practice, and these qualities may approximate to those tested in the course of an intelligence examination.

The ordinary course in physiology in Glasgow demands both attendance at lectures and the performance of practical work. For convenience the academic year is divided into three terms, each of ten weeks' duration, and at the end of each term there are two class examinations—one by a written paper, the other by a practical test. The sequence of lectures is uninfluenced by the terms, and the three written examinations are of exactly the same type. Each consists of a paper with three questions to be answered within one hour, and asking for a simple restatement of current physiological teaching. The practical work, however, deals with three separate aspects of physiology, the first ten weeks being devoted to experimental physiology, the second to chemical physiology, the last to histological physiology. The three practical tests, therefore, are alike in demanding something in addition to the power of reproducing acquired information.

The marks used in the present investigation were all obtained from the same students sitting the same examinations. The intelligence test—"Group Tests, Series 33," of the National Institute of Industrial Psychology—was given at the outset of the year's work. Attendance was compulsory, no warning was given, and over 140 students sat the paper. The 140 papers were ultimately whittled down to 108; a certain number of the students had sat the same intelligence paper in the previous year, a few several years before, and their papers were ignored. The papers of students whose native language was not English, and those from students older than the average student, were also omitted. The previous academic instruction of the students was the same in every case, and the ages varied from 18 to 20 years. The intelligence tests were left uncorrected until the students concerned had passed through the entire year's course in physiology. Thus those who corrected the class work had no idea of the intelligence test mark gained by individual students.

Correspondence between any two series of marks was estimated by finding the coefficient of correlation. The results are given in the accompanying table.

Intelligence Test Series with:	Written Paper.		Practical Test.	
	Correlation Coefficient.	Probable Error.	Correlation Coefficient.	Probable Error.
Average of all the marks ...	+ 0.19	0.063	+ 0.36	0.057
Marks in experimental term	+ 0.28	0.060	+ 0.28	0.060
Marks in chemical term ...	+ 0.003	0.065	+ 0.27	0.060
Marks in histological term ...	+ 0.17	0.063	+ 0.24	0.062

Correlation between intelligence test results and the results of practical work is low, but in every case significant. This cannot be said of the correlation between this intelligence test and the written papers. The correlation coefficient between the average mark gained in the three written papers and the average mark gained in the three practical tests is +0.44, with a probable error of 0.053.

Owing to the distractions of student life, it is possible that the results of written papers may not represent the true ability of a large number of undergraduates. An intelligence test for which no preparation is required presumably indicates the total ability of each candidate. In the degree examination, however, it should be otherwise, because the great majority of those who present themselves have worked reasonably well and feel fairly confident.

The correlation coefficient between the results of the same intelligence test and the marks gained by the same group of students in the degree examination at the close of the year's work was only + 0.13, with a probable error of 0.067. Thus it seems that the striking want of correspondence between intelligence test results and the results of written class examinations cannot be attributed wholly to outside distractions operating inimically on the class work, with a special bias against the written papers. Incidentally, those students who had sat the same intelligence test the previous year showed without exception a definite increase in marks in comparison with their previous attempt.

Summary.

The results of written examinations, of practical examinations, and of an intelligence test obtained from a uniform group of medical students showed that the results of the intelligence test gave consistently a significant, though low, correlation with the results of the practical work; but with the results of the written papers the correlation was lower and not consistent.

It is suggested that the qualities of value in dealing with an intelligence test approximate more closely to those which are useful for dealing with a practical examination than to those which are useful in answering a written paper.

I am deeply indebted to Professor Cathcart for advice and for assistance.

British Medical Journal.

SATURDAY, AUGUST 9TH, 1930.

A NATIONAL MATERNITY SERVICE.

The publication this week of the interim report of the Departmental Committee on Maternal Mortality and Morbidity (of which a summary, with some comment, will be found on page 223) should mark a further stage of progress towards the establishment of a national maternity service. The first detailed proposals in this direction were those of the British Medical Association approved by the Representative Body at Manchester in July last year. They were shortly followed by similar proposals made by the Departmental Committee on the Training and Employment of Midwives, and by other bodies or associations. There was an influential demand, and in some quarters an expectation, that the new Government should introduce legislation to the end indicated, even in its first Parliamentary session. This demand, or expectation, has not been fulfilled. There were no doubt several reasons for postponement, but one of those officially given was the desirability of waiting for the report of the Departmental Committee on Maternal Mortality and Morbidity. A more insistent desire will now be felt for Government action at an early date on one of the most urgent problems of the time; it is to be hoped that the fact that the report of that committee is interim and not final will not be made a renewed excuse for delay. On the particular issues relative to the suggested legislation there is now full information available, though there is need for further consultations with regard to some practical medical and administrative problems, and important financial considerations have to be taken into account. So far as the British Medical Association, representing the organized profession, is concerned with these, action need not be unduly delayed.

The proposals of the Association towards the establishment of a national maternity service have, during the past year, had a wide publicity and received a large measure of approval. They are published as a separate document, slightly amended from the form in which they were printed in the Annual Report of Council in 1929 (*Supplement*, June 29th, 1929, p. 258). An explanation of two points on which there had been some misunderstanding will be found in the Annual Report of Council this year (*Supplement*, April 19th, 1930, p. 134, para. 90), and this should be noted. The report of the Departmental Committee on Maternal Mortality is a valuable reinforcement of the Association's scheme in four respects. Emphasis is laid by the committee on the urgent need for such a scheme. "They wish to state explicitly their view that at present the maternity services are not yielding their potential value, and are not proving a solution of the problem of maternal mortality because of the lack of co-ordinated effort." The report lays down exactly those essential conditions and indicates exactly those essential services which the Association's scheme is devised to provide. In regard to the main differences between the proposals of the Association and the suggestions of the Departmental Committee on Midwives which reported last year, the present committee's report inclines decidedly to the former. These differences are noted in this year's Annual Report of Council (*Supplement*, April 19th, 1930, p. 133, para. 86): they relate to the provision of a doctor's services in a normal case, to the admission to an institution at the patient's option, and to the inclusion in an insurance scheme of the pauper class. Again, the Association's proposal that in certain circumstances a portion of the cash maternity benefit should be payable in advance (which was not noticed by the earlier departmental committee) is supported in the present report. Further, it is gratifying that support is given by the committee to an additional point in the Association's policy in a statement worded as follows: "It is essential that there should be cordial co-operation on the part of the medical profession and of practising midwives, and that for this purpose some kind of co-opted representation of practitioners and of midwives on the committees or subcommittees concerned should be provided for."

Two other matters definitely relevant to a national maternity service are dealt with or referred to in other sections of the departmental committee's interim report. The more important of these relates to the use of anaesthetics and analgesics in obstetric practice. It may be remembered that the Departmental Committee on Midwives said that "it would be to the public interest if some professional body would issue at an early date some pronouncement as to the advisability and place in labour of anaesthetics and sedative drugs generally." In response to this the Council of the Association set up a special committee to report on this matter, and this report was submitted to the departmental committee. There were similar reports from the Royal College of Physicians and from the British College of Obstetricians and Gynaecologists. Meanwhile a well-intentioned but misguided effort had been publicly made to provide anaesthesia for every maternity case. All the reports referred to point out the undesirability of these drugs in certain classes of cases and the danger, either to mother or to child, of their use by persons other than properly qualified medical practitioners. The committee's report fully endorses the position held for so long by the British Medical Association; nevertheless, the provision for anaesthesia is an essential part of any national maternity service.

The other subject referred to is the scale of fees to be paid to practitioners called to a case by midwives. This is important not merely as part of, but prior to, a national maternity service. The earlier departmental committee came to the conclusion that the present scale should be reconsidered by the Minister of Health in consultation with the British Medical Association, and the present committee's report states that it does "not feel that the present scale of fees paid by local authorities under the Midwives Act could be adopted without revision." These expressions of opinion amply justify some such revision as is now asked for by the Association, after careful consideration by the Council and full debate at the recent meeting of the Representative Body.

THE ORIGIN OF CUSTOMS AND BELIEFS.

An experienced medical practitioner who had watched the fate of most of the leading men of a great industrial centre for more than a generation once said that a man who had lived a strenuous life in business commonly died within a couple of years after retiring if he had failed to provide himself with a hobby. Men of active mind who have reached a vigorous old age have almost invariably had some second subject to which they could turn; for such men the best relief is to change the current of thought. Granted the wisdom of having some subject of interest outside the

daily round, it may be wise to choose one in which it is fairly easy to attain moderate excellence as an amateur. No one is better placed to find a congenial indoor hobby than a medical man, for his early training gives him the elements of such sciences as botany and physics and chemistry, while the history of medicine opens innumerable by-paths along which he may wander. If it be generally true of all men that the proper study of mankind is man, it is in a very particular sense true of the members of our profession. Every day in the ordinary practice of medicine are encountered customs, habits, prejudices, even superstitions, rooted in the dim barbarous past, but influencing the actions of civilized men and women to-day—the survivals of pre-Christian religions and of prehistoric folk medicine. Therefore of all hobbies perhaps the most appropriate for us is to browse in the literature of the beginnings of man, and, whenever opportunity serves, to correct our impressions by seeing and handling his handiwork.

It may savour of flippancy to suggest as a suitable subject for a hobby any department of a science calling for so much industry, erudition, and critical acumen as is required from one who would make serious contributions to anthropology or ethnology. The impression produced by a first attempt to gain some acquaintance with the literature of that part of anthropology concerned with the history of the beliefs, customs, and practices of mankind is one of bewilderment. Its mass is already enormous, its contents confused and contradictory, and the interpretations conflicting. Before going very far, however, a remarkable similarity is perceived in these respects between races widely separated in time and space. Upon this all authorities are agreed, but when an explanation is sought great divergence of opinion is disclosed. The problem, as stated some ten years ago by Sir James Frazer, is, "How are we to explain the numerous and striking similarities which obtain between the beliefs and customs of races inhabiting distant parts of the world? Are such resemblances due to the transmission of the customs and beliefs from one race to another, either by immediate contact or through the medium of intervening peoples? Or have they arisen independently in many different races through the similar working of the human mind under similar circumstances?" There are difficulties in the way of either explanation, and to Sir James Frazer they appeared so strong that he held both causes to have operated, believing that many of the resemblances "are to be explained by simple transmission, with more or less of modification, from people to people, and many are to be explained as having originated independently through the similar action of the human mind in response to similar environment." That there has been local modification and transmission of the belief or custom so modified nobody doubts, and Frazer's compromise does not seem to help very much. It is, in fact, less a compromise than a restatement with very slight modification of the original hypothesis of diversity of origin.

On the other hand, Professor G. Elliot Smith, one of the most vigorous and best equipped of the most modern school, after remarking that the clear light "recent research has shed upon the earliest literature in the world has done much to destroy the foundations upon which the theories propounded by scholars have been built up," has asserted that the prevailing doctrine of the independent development of human beliefs and practices "is not a safe basis for the construction of theories. . . . At best it is an unproven and reckless speculation. I am convinced it is utterly false." Without presuming to take sides, the amateur ethnologist will pay due heed to this very definite opinion on a matter of perennial interest to students of mankind.

THE PARLIAMENTARY SESSION.

In the parliamentary session which began on June 25th, 1929, and ended on August 1st, 1929, the legislative output has not been commensurate with the time expended; some important measures promised in the King's Speech have been dropped after introduction, or not introduced at all. The promised bill to codify and modernize the Factory Acts is in the latter class. But apart from that measure bills of direct medical interest had the good fortune which of late years the Ministry of Health seems to command for most of its proposals. Measures which are now on the Statute Book include the Mental Treatment Act, the Highlands and Islands (Medical Service) Additional Grant Act, the Workmen's Compensation (Silicosis and Asbestosis) Act, the Housing Act, and the Housing (Scotland) Act. The Education (Scotland) Act, which was introduced by Dr. Elliot, will facilitate the provision of milk to Scottish school children. The Road Traffic Act as passed includes a section providing that voluntary hospitals if they treat those injured in road accidents shall receive a share of the sums paid on third-party insurances. This provision was inserted by unofficial members in the House of Lords, and supported by others in the House of Commons so firmly that the Government, though doubting its practicability, could not insist on its deletion. Bills of medical interest which failed to pass had all been introduced by private members. Among them were the Poor Law Officers' Superannuation Bill (Dr. Vernon Davies), the Midwifery and Maternity Bill (Mr. Alpass), the Protection of Animals Bill, and the Protection of Dogs Bill. For once the debate on the Ministry of Health Estimates was dominated by a health subject—the report of the Government actuary on the increase in sickness benefit under the National Health Insurance Act; Mr. Greenwood announced that this matter would be further investigated. He also made the first public announcement of the Government's contribution toward the establishment of a centre in London for post-graduate medical work, to be available for panel practitioners as well as for medical men from the Empire oversea. Maternal mortality was chosen as the subject for another full day's debate in the House of Commons, and on this the discussion was keen. Interpellations or briefer debates have been concerned with the shortage of medical officers in the Navy and Army, the retired pay of R.A.M.C. officers, colonial medical services, the recognition of Indian medical degrees, tuberculosis in cattle, diet and the teeth, and psittacosis, a subject in which the House took still more interest. Bills promoted by local authorities included one from Cardiff, which proposed special arrangements for the early notification of cancer, and another which proposed that Hull should acquire and control a special stock of radium for the use of local medical men. The latter provision was modified during the passage of the bill. During the long debates on the Mental Treatment Bill some Labour M.P.'s exhibited a prejudice against the Board of Control and a desire to keep the early treatment of mental cases away from recognized mental hospitals and out of the control of the Board. Apart from this and from an *obiter dictum* of Mr. Morrison, Minister of Transport, against the voluntary hospital system, no suspicion of antimedical prejudice has marred the session. The Parliamentary Medical Committee, stronger in numbers than ever before, has worked well together. Its last business during the session was to ask the Minister of Health to consider the

establishment of a central advisory council to correlate the work of rheumatism clinics. A Public Health Advisory Committee of the Labour Party has also emerged as a separate entity. Meetings were held at the House of Commons during the session by M.P.'s and others who desired to bring about the establishment of a national medical service, but their campaign was suspended until its leaders had considered the new scheme propounded by the British Medical Association. Mr. Greenwood, as Minister of Health, has been fully aware of the importance of the health side of his department. Among medical M.P.'s Dr. Vernon Davies, Dr. Fremantle, and Dr. Morris-Jones have contributed most to debates. Dr. Salter and Mr. Somerville Hastings have organized the work of the Parliamentary Medical Committee, and the former was active on the Road Traffic Bill. Little was heard during the session from the antivaccinationists, and the antivivisectionists chiefly confined themselves to questions about the Porton experimental station for investigating poison gas. A petition in favour of the recognition of osteopaths was presented in the closing days of the session.

PURULENT TUBERCULOUS PLEURISY.

ACCORDING to the classical teaching surgical intervention is undesirable in the treatment of purulent tuberculous pleurisy, the treatment of election being by medical means, with the addition of careful needling. As chest surgery advances this view is changing, and it is important that the precise indications for operative measures should be properly understood. In a recent monograph[1] Drs. F. Dumarest, P. Rougy, and M. Guilleminet discuss very clearly how team work can be applied to the treatment of this complication of phthisis. Dr. Dumarest and his collaborators hold that much of the confusion that exists in this subject is due to the fact that all varieties of purulent tuberculous pleurisy are improperly lumped together. They accordingly classify cases in definite groups, and for the clinical types in each group they lay down principles of treatment. The first condition they consider is "cold abscess of the pleura" with or without a coexisting pneumothorax. Here the general condition of the patient is remarkably good, and the complication may be discovered almost accidentally; complete reabsorption of the pus is possible, and, provided no distress is being produced by the effusion, strictly medical and hygienic measures should be employed. Needling of the chest may be necessary when severe dyspnoea is present, but there is always the risk of producing a permanent fistula. In cases of pneumothorax complicated by a cold abscess which does not absorb and which recurs after tapping, the authors recommend the production of oleothorax. Another type of purulent tuberculous pleurisy is that in which a simple pleural effusion appears to have become infected. Although in a patient with such a pleurisy the clinical condition is much worse than in the cold abscess type, and is marked by fever and signs of systemic disease, direct evidence of secondary infection is not obtained easily. Such cases in their early stages may be difficult to diagnose from simple pleurisy with effusion, and at the beginning of treatment removal of fluid with gas replacement is advised. As soon, however, as the general condition of the patient makes it certain that the effusion has become infected, lavage of the pleura should be undertaken by means of certain antiseptics, notably weak iodine solution, introduced through a special three-way cannula. If this treatment fails to ameliorate the patient's condition then the question of incision of the pleura and drainage has to be considered, but this operation should be performed only as a last resource. In the third group of cases the pleural effusion is frankly septic with bacteriological evidence of a mixed infection. Here the exact state of the pyothorax must be carefully considered; whether it communicates with a bronchus or not, and whether the visceral layer of the pleura is intact or destroyed over a wide area of lung. In closed pyothorax cases, tapping of the effusion with pleural lavage may be tried first, but opening of the pleura and drainage is usually necessary. The aim of treatment is to secure adhesions between both layers of the pleura and obliteration of the affected area. This is a rare occurrence after simple drainage, and some form of thoracoplasty, with or without phrenic nerve section, is frequently necessary. In cases where there is a fistula between lung parenchyma or bronchus and the infected pleural space, the treatment is different because constant reinfection of the pleura is bound to occur. If there is a small infected cavity in the pleura, with a sound lung on the opposite side, thoracoplasty should be considered as an immediate proceeding; but if the whole of one side of the chest is filled with pus and the pyothorax is "open" then every effort must be made to reduce the amount of fluid by tapping, pleurotomy, and phrenicotomy so that thoracoplasty can be performed later. While Dr. Dumarest and his colleagues are fully agreed that a tuberculous effusion is best left alone as long as possible, they have set out very clearly in the monograph here summarized the exact indications for further treatment when active measures become necessary.

[1] *Traitement des Pleurésies Purulentes Tuberculeuses.* Par F. Dumarest, M. Guilleminet, P. Rougy. La Pratique Médicale Illustrée. Paris: G. Doin et Cie. 1930. (7¼ × 10, pp. 42; 4 plates. 16 fr.)

THE SCIENTIFIC BASIS OF MASSAGE.

UNDER one name or another massage has been used for ages, and in many countries as a means of treatment of many morbid conditions, and for more than a generation surgeons have taken its claims seriously and have prescribed its application, but without much exact scientific knowledge of its mode of action. Attempts have been made to fill the gap in our knowledge, of which a serious one is represented by an inquiry made by Drs. Pemberton, Coulter, and Mock, the report of which has been approved by the Council on Physical Therapy of the American Medical Association, and its first part published in the journal of the association.[1] From the evidence brought forward, and from former essays on the subject, it seems safe to conclude that massage increases local metabolism and the excretion of waste products, stimulates the circulation, and also reacts on the nervous system as manifested by the reflexes. Unlike volitional muscular contraction, it does not increase the formation and excretion of lactic acid. In persons who are unable to take active exercise it may compensate for the want of the effect of muscular contractions on the return of venous blood to the heart. The authors of this paper describe the three varieties of manipulations with their subdivisions, dear to the physiotherapeutist, but not held to have so great an importance by many surgeons. The Council on Physical Therapy of the American Medical Association condemns the use of mechanical exercises such as those introduced by Zander as long ago as 1857 on the following grounds:

1. Volitional effort is not encouraged.
2. The same results could be accomplished without an apparatus.
3. Treating only one part does not give any of the advantages of general exercise.
4. The use of such apparatus is monotonous, and the patient loses interest in treatment.
5. The effect is that of massage and lacks the physiologic benefits of exercise.
6. Such apparatus is definitely dangerous.

No instances of these evil effects are, however, adduced. Most surgeons will approve of the judicious use of massage in the treatment of sprains, including those forms of sprain which really form the traumata of dislocations. Except in the case of children we think that most will accept the approval of Lucas-Championnière's teaching as to the use of massage for fractures, although few nowadays will go far with him as to the advisability of discarding splints. In

[1] *Journ. Amer. Med. Assoc.*, June 21st, 1930, p. 1989.

sprains and fractures it would appear that the role of massage is the restoration of the circulation which has been impaired by rupture of capillaries. An elaborate tabular list of suggestions for starting physical therapy in fractures is appended to this paper, in which the method of immobilization, the position, the duration of splinting, the use (if any) of a convalescent brace, and the date and duration of physical therapy are stated for every typical injury. There are also paragraphs on the applicability of massage to the treatment of stiff joints and amputation stumps, and the paralysis of anterior poliomyelitis and Little's disease. A note of caution is struck in the discussion of these last two conditions, of which we strongly approve. If there is little or nothing that is new in this report it at least reminds of ascertained facts which should be remembered. It is to be continued in a later issue of the *Journal of the American Medical Association*.

THE ANTI-SCURVY VITAMIN IN APPLES.

THE investigation of the vitamin content of various foodstuffs is one of the less spectacular, but highly important, phases of the medical research which is at present making steady and regular progress. "Routine" research sometimes receives rather disparaging comment; it is apt to be forgotten that every big advance leaves, almost in proportion to its magnitude, a large number of points of detail which must be worked out if full advantage is to be taken of the ground gained. This "following up" is often tedious, and is usually expensive in both time and money; yet it is absolutely essential to the progress both of practice and of theory, and not seldom does it lead to unexpected and new advances. The report[1] by Bracewell, Hoyle, and Zilva, on the anti-scurvy vitamin in apples, issued by the Medical Research Council, is an example of a careful and systematic "follow up" of the vitamin story. The work, as the authors make clear, is part of a much wider scheme, which aims, partly at least, at gaining fresh knowledge of the nature and properties of the vitamin itself. Several facts of practical importance emerge. It seems to be finally shown that some apples are a reasonably good source of the vitamin. Cold storage has only a slight deleterious effect—an important point, in view of the extent to which imported apples are eaten. Roasting the apples in their skins destroys the vitamin only to a negligible extent. A more interesting matter from the scientific point of view is the very queer distribution of the substance. It is well known that lemons are rich in vitamin C, and that limes are poor, and that the substitution of limes for lemons in the British Navy had disastrous results. It is more startling, however, to realize that there are tremendous differences in the vitamin C content of different types of apples, one kind in particular, Bramley's Seedling (a cooking variety), being far richer than any of the other kinds tested. This difference seems to be truly dependent upon the species of apple, and not upon the age of the tree, the soil upon which it is grown, or the time of year (provided the apples are suitable for picking) at which the fruit is gathered. To those who are not horticultural experts one apple tree looks very like another, and such marked differences are unexpected, although in some Continental work, not yet published, equally striking differences between closely allied fruits are demonstrated. The facts seem to place vitamin C in a somewhat different category from other substances of known physiological activity—for example, the hormones, thyroxine, and insulin seem to be present in all vertebrates. The other vitamins seem to be pretty widely and evenly distributed; vitamin A can be found in almost any liver oil, B in most green vegetables, while D is formed when ultra-violet light acts upon a sterol, which, again, is widely distributed. But vitamin C may be relatively abundant in one of two closely related fruits, and absent from another, notwithstanding the fact that they are growing almost side by side. These rather remarkable facts recall to memory the fact that the incidence of scurvy is itself not so general as is that of other deficiency diseases. Of all the common laboratory animals, the guinea-pig is the only one which is susceptible, and the only one, therefore, which can be used for experiments with vitamin C; of other animals, it seems that only man suffers from the disease. It is possible that there may be here an interesting problem for geneticists. It is impossible not to advert to the need, brought out very forcibly in the communication here discussed, for some method of assaying vitamin C other than that of animal experiment. Vitamin A can now be estimated with some exactitude by means of a chemical reaction, but for all tests for vitamin C guinea-pigs have still to be employed, and the labour and expense entailed are very large indeed. A large number of animals have to be used, and they must be kept under the very best conditions, not only for humanitarian reasons, but because relaxation of precautions inevitably renders all results worthless, through failure of the controls to behave normally, or because of the incidence of intercurrent disease. It is interesting that, in this work, it has been found possible to avoid gastro-intestinal epidemics by the use of prophylactic vaccines.

[1] Medical Research Council. Special Report Series, No. 146. The Antiscurvy Vitamin in Apples. By Mary F. Bracewell, E. Hoyle, and S. S. Zilva. London: H.M. Stationery Office. 1930. (9d. net.)

A STATISTICAL STUDY OF ALCOHOLISM.

SOME interesting facts about 1,645 patients consecutively discharged from Dalrymple House, Rickmansworth (an institution for the treatment of men of the educated class suffering from alcohol or drug excess), are set out in tabular form in an appendix to the medical superintendent's report for 1929–30. Only forty-seven of the patients suffered from drug addiction alone, but of the rest over 200 took drugs in some form or other, morphine and opium addiction being commonest, and addiction to cocaine, though much rarer, next. Most of the patients are described as having social habits, only seventy-five being of the solitary kind. Their temperaments are classified in the tables under the headings nervous, nervo-sanguine, passionate, phlegmatic, and sanguine, the majority (993) being of the first type, 256 of the last, and only 33 being described as passionate. Fifty per cent. of the patients gave a family history of inebriety, and 11 per cent. of insanity with or without inebriety. In 1,104 the drinking habits were regular, in 495 they were periodical, the frequency of bouts ranging from once a week to once every twelve months. Delirium tremens attacked 429 patients, of whom 258 had one attack, 119 two, 26 three, and so up the scale, ending with 13 patients who had had twelve attacks. The age period of greatest addiction was 30 to 40, with 636 patients, though the period 40 to 50 ran it close with 524. One of the patients was under 20 and four were between 70 and 80. Over half the patients (856) were married, 110 were widowed, and 679 were single. A study of the occupations suggests that the greatest susceptibility is among persons with no occupation, the number in this group being 380; next in order come merchants (178) and medical practitioners (130). There were only twenty-two persons in the group classed as "artists and theatrical." Influence of occupation is suggested as an exciting cause in 113 cases, including commercial travelling in 14, journalism in 9, and wine and beer trade in 33. Other prominent exciting causes are sociability in 802 cases, overwork in 77, and nervous shock—a wide term including war service, domestic trouble, business worry, and financial loss—in 295. Prominent among the complicating diseases were alcoholic neuritis (77), chronic constipation (57), general debility (56), morbus cordis (47), renal disease (48), chronic rheumatism (27), and syphilis (32). The average

length of the period of treatment was twenty and a half weeks, the after-histories of the patients being as follows: abstaining 40 per cent., improved 6 per cent., not improved 22 per cent., insane 2 per cent., no news obtainable or dead 22 per cent., and discharged unsuitable for treatment or transferred elsewhere 6 per cent.

MELBOURNE HOSPITAL CLINICAL REPORTS.

A NEW medical periodical, the *Melbourne Hospital Clinical Reports*, has now been established in order to obtain a wider circulation for the clinical and experimental work carried on at that institution; it will be published twice yearly, in June and November, under the editorship of Dr. S. O. Cowen. Two years ago special staff meetings were instituted for the discussion of medical, surgical, and pathological topics, and the opening papers, which were often based on analyses of the hospital case notes, have proved sufficiently valuable to merit permanent recording. Certain senior members of the hospital staff have also been engaged in collecting and publishing historical records and reminiscences, and information of this nature will be included. The first issue of the *Clinical Reports* opens with an attractive account of the history of the Melbourne Hospital, which has been prepared by Dr. G. T. Howard, and it is announced that Sir James Barrett will contribute to the November issue some details of the progress of the institution from 1879 to 1883. The hospital was founded as long ago as 1834, but its growth was slow at first. Quite a small building sufficed until 1852, when the great influx to the gold diggings led to a series of increases in patients and buildings which brought the accommodation up to about 300 in 1867. The present buildings, opened in 1913, provide a total of 414 beds, and last year 8,400 in-patients were admitted and 57,000 out-patients were treated. The clinical records in this first issue include an account of focal infection, by Dr. C. H. Kelleway, director of the Hall Institute of Research, and F. Eleanor Williams. Drs. H. F. Maudsley and R. J. Wright-Smith describe a case of encephalitis periaxalis diffusa; Dr. K. D. Fairley discusses the diagnosis and prognosis of complete blocking of the right branch of the bundle of His, and also comments on the value of laboratory aids in the diagnosis of hydatid disease. The opening paper, read by Dr. L. E. Hurley at a staff discussion on diabetic coma, is printed; it was based on an analysis of fifteen cases unaccompanied by surgical complications, and some practical considerations in the treatment of this condition are appended. Other articles relate to the treatment of furunculosis by x rays, and the diagnosis of thrombo-angiitis obliterans. Dr. R. J. Wright-Smith, pathologist to the hospital, describes certain museum specimens. Miscellaneous case reports complete an interesting record of clinical work, the compilation of which promises well for the future success of the new periodical.

MEDICAL APHORISMS OF CORVISART.

IT is probably true that every thoughtful practitioner of medicine, almost insensibly perhaps, accumulates from his own experience a more or less numerous series of guiding propositions which hold his faith and direct his path. Some of these, were they published, would be valuable contributions to the art of medicine. To be successful, however, such an enterprise makes a high demand; it claims both deliberation and confidence and some capacity for literary effectiveness, and these virtues are not every man's property. Yet when they are set to the purpose the result is both attractive and serviceable. Such terms of appreciation may justly be applied to the recently published volume of *Aphorismes de Médecine Clinique par le Baron Corvisart*.[1] The collection has an interesting history. It was recently discovered in manuscript together with a note explaining that the author had not found the opportunity to publish it because of the duties imposed upon him as Premier Médecin de l'Empereur Napoléon. The discovery is certainly a welcome one, and we are indebted to our French colleagues for an opportunity of studying the medical aphorism as this may be constructed by a master of the art and expressed in a language peculiarly capable of the effective phrase. Our readers bent on holiday plans may perhaps be inclined for literature outside the professional bookshelf, yet if they enjoy deliberate and well-balanced judgements presented with artistic point and force they will find Baron Corvisart's aphorisms excellent company, and to examine them in the light of an added century of observation and discovery is an inviting opportunity for thought and criticism. Dr. Paul Busquet, who has edited the volume, introduces with a brief commentary each of the four groups in which the sentences are arranged, and his notes have a distinct interest. It must certainly be allowed, as Dr. Busquet claims, that the aphorisms show the author to have been not only a physician of wide knowledge and great distinction, but devoted also to the highest standards of professional duty and responsibility. His teaching relates both to the technical art of medicine and to the mental and moral attitudes to be cultivated by the practitioner, and always his point goes home. To select particular sentences for quotation is to become sensible of an embarrassment of riches, but we can hardly resist "Le Médecin doit bien se garder de la manie de tout expliquer"; and there are many others of equal temper and point.

[1] *Aphorismes de Médecine Clinique par le Baron Corvisart.* Recueillis par F.-V. Mérat. Publiés par le Dr. Paul Busquet. Paris: Masson et Cie. (20 fr.)

MEDICAL INSURANCE AGENCY.

A MEETING of the committee of management of the Medical Insurance Agency, Limited (by Guarantee), was held at the House of the British Medical Association on July 29th, when the report of the twenty-third year of the agency's work and the corresponding balance sheet were adopted. Although the prevalent commercial insecurity in the country must have had a depressing effect on the agency, yet it was revealed in the report that the general progress of previous years had satisfactorily continued, an outstanding feature being the opening of the office in Scotland, where the volume of business dealt with had been highly gratifying. The total premium income for the year approximated £98,000, an increase of more than £8,000 as compared with the previous year. The amount of business now passing through the agency may be gauged from the fact that no fewer than 6,500 renewals had to be dealt with. The commission from motor-car insurance continued to increase rapidly, and is a practical proof of the satisfaction caused by the special policy for medical practitioners. In last year's report it was mentioned that life assurance, etc., dealt with through the agency approximated a total of one and three-quarter million pounds; during the year now under review the figure rose to two million pounds. The following grants were made to organized medical charities for 1930:

		£	s.	d.
Royal Medical Benevolent Fund		630	0	0
Royal Medical Benevolent Fund Guild ...		630	0	0
Epsom College—				
Dawson Williams Memorial Fund	£650			
Royal Medical Foundation	£210			
Head Master's Distribution Fund	£100			
		960	0	0
Girls' Education Fund		250	0	0
Royal Home for Incurables, Putney		52	10	0
Sir Charles Hastings Fund		52	10	0
Royal Medical Benevolent Fund (Ireland) ...		25	0	0
		£2,600	0	0

As a result of this distribution the total sum devoted to medical charities by the Medical Insurance Agency since 1910 has amounted to £25,580.

MATERNAL MORTALITY AND MORBIDITY.

THE DEPARTMENTAL COMMITTEE'S REPORT.

THE interim report of the Departmental Committee of the Ministry of Health on Maternal Mortality and Morbidity has been somewhat impatiently awaited. It was published this week, and proves to be an extremely interesting and important document, which fully justifies the apparent delay for which the committee under the chairmanship of Sir George Newman has in some quarters been blamed. Some measure of its importance is indicated in a leading article this week at page 218, but there are so many weighty matters dealt with in its 151 pages that a careful study of them must be advised.

The committee desired to base its report upon an examination of a sufficient number of maternal deaths of which reports had been made by an experienced medical officer in each sanitary area in accordance with an arrangement entered into in the early part of 1928. The draft form of inquiry in connexion with this arrangement, which received the concurrence of the British Medical Association under conditions safeguarding the confidential nature of replies thereto, was issued in October of that year, and the main part of the departmental committee's report is based upon a careful examination of the first two thousand cases of which particulars have thus been obtained. Although at the present time about two-thirds of all maternal deaths in England and Wales are coming under the notice of the committee, in the earlier months the returns were not so abundant, and a considerable time has had to elapse before a sufficient amount of material could be accumulated, examined, and analysed.

Though some of its sections may be regarded as complete the report is an interim report, since the committee say: "We propose to reserve for a subsequent report further inquiries and recommendations concerning morbidity associated with pregnancy and the puerperium, puerperal sepsis, statistical aspects of the maternal mortality rate, methods of public education in the preventive side of the problem, and some outstanding questions involving research in which we are now engaged, together with an account of our investigation into an additional number of maternal deaths." It will be remembered that Mr. Neville Chamberlain, as Minister of Health, had appointed another departmental committee, under the chairmanship of Sir Robert Bolam, to report mainly on the training and employment of midwives. The report of that committee was noticed at some length in the *Journal* of September 28th, 1929 (p. 592). The references to the two committees allowed of some overlapping; in the present report some matters concerning the training of midwives in relation to that of medical students in maternity wards or hospitals, and the position of midwives in a national maternity service, are dealt with from a somewhat different point of view, but with general agreement.

Investigation of Maternal Deaths.

The two thousand maternal deaths which were investigated were unselected cases, probably representative of the deaths occurring all over the country. They are classified in a way which has much practical value, and the conclusions which are drawn from them are expressed very carefully and with a commendable absence of dogmatism. The two main classes are: (1) deaths directly due to pregnancy and child-bearing, including abortion and ectopic gestation (1,596); and (2) deaths due to an independent disease concurrent with pregnancy or childbirth (404). In the first class 38.6 per cent. of the deaths were due to sepsis, and 13.6 to eclampsia, while shock, antepartum and post-partum haemorrhage, other toxaemias, and embolism were responsible severally for percentages varying between 6 and 9. The 616 deaths from sepsis have been divided into three classes: (1) following ordinary normal labour; (2) following delivery by low forceps in an otherwise normal labour; and (3) following complicated labour. The numbers in these groups were 294, 47, and 275 respectively. The main object of this investigation was, of course, not academic but practical. The investigators have accordingly tried to discover in each case what they call the "primary avoidable factor"—that is, the first omission, mistake, or misjudgement in the train of events which led up to the fatal result; the standard of comparison on which judgement was based is set out. It is not an unduly high one, but rather one which may reasonably be expected to be attained in good medical practice in most parts of the country. Omitting cases of abortion and of extrauterine gestation, and a number of others in which information was insufficient, the cases which showed a primary avoidable factor were 626, and those in which no departure from established practice having a causal relationship with the death was found were 660. In a broad general analysis, therefore, and with no claim to mathematical accuracy, it may be said that the net percentage of preventable deaths is as high as 48. The primary avoidable factors in these 626 cases are subdivided under four headings: (1) omission or inadequacy of ante-natal examination (226); (2) error of judgement in management (224); (3) lack of reasonable facilities (64); (4) negligence of the patient or her friends—usually in failing to follow the doctor's advice or in ignoring obvious and serious symptoms—(112). In the first two of these groups the doctor, the midwife, the hospital, or the clinic may have been at fault, and the first group contains 109 cases in which the pregnant woman did not submit to ante-natal examination. These are not included in group (4).

The committee realizes that "caution must be exercised in drawing conclusions from the evidence obtained from these investigations," but it is clear that information has been elicited which is of definite and substantial practical value. The vast importance of adequate ante-natal examination and supervision in *every* case is reaffirmed, and adequate treatment of any discovered abnormality should naturally, but does not always, follow. Further, "in relation to serious complications and accidents of labour, whether or not they might have been foreseen and averted by ante-natal care, the committee have ample proof of the need for a higher standard of knowledge and skill on the part of the general practitioner as well as for the provision of consultant services and of an increased number of readily available hospital beds. . . . Amongst the deaths from haemorrhage a number of patients might have been saved had specialist services (including facilities for blood transfusion) been at hand. At the same time it must not be lost sight of that the majority of cases of haemorrhage and obstetric shock can be saved from death by the immediate replacement of fluid by intravenous or subcutaneous saline solution." Attention is drawn to the relative infrequency with which this treatment is administered. With regard to sepsis, substantial improvement may be looked for when ante-natal diagnosis becomes more efficient and widespread, when a specialist service is more easily obtainable, and when hospital accommodation for suitable cases is more adequate. Even so, the number of deaths from sepsis following "normal labour" demands intensive investigation.

Puerperal Sepsis.

In view of its importance this matter of puerperal sepsis is dealt with in a separate chapter of the report. It is considered in its administrative aspect; in regard to its causes, both bacteriological and predisposing, and whether the microbic infection is extrinsic or intrinsic; with reference to its prevention by methods of sterilization, and by the proper construction, equipment, and staffing of maternity institutions; and in relation to its treatment. A number of very valuable suggestions are incorporated in this chapter and in an appendix on sterilization of the hands by Dr. Leonard Colebrook. Among other matters discussed are the unreliability of lysol, the use of gloves and of masks, and the need for the provision of sterilized pads and swabs; it is stated that investigations into the value of certain methods of treatment will be summarized in the final report.

[1] Ministry of Health. Interim Report of Departmental Committee on Maternal Mortality and Morbidity. London: H.M. Stationery Office. 1930. (2s. net.)

Ante-natal Care.

In the chapter on ante-natal care the pioneer work of Dr. J. W. Ballantyne is acknowledged, and reference is made to the committee's "Memorandum on ante-natal clinics; their conduct and scope," which was issued to local authorities by the Ministry of Health in July last year. This is now reprinted as an appendix to the report. We commented upon it shortly after its publication (*Journal*, August 17th, 1929, p. 315). Some amplifications of this memorandum are made in the chapter, but nothing very material is added. The prime importance of the clinics, when properly conducted, for the education of the pregnant woman, of the midwife, and, when in suitable association with a teaching hospital, of the medical student is fully recognized, as is also the possibility that in other respects they may supply a need which is only temporary. "Under a reformed maternity service much of the work of routine examination clinics may be transferred to the family practitioner and the trained efficient midwife, but at present they are essential for securing ante-natal care when it would not otherwise be available." The different functions of the true consulting clinic are pointed out; and an important statement, to which the attention of local authorities and their officers may again be drawn, is that "generally speaking, treatment of abnormal cases is not the work of an ante-natal clinic." In paragraph 177 of a subsequent chapter the committee emphasizes this, and enunciates "that it is a principle to be acted upon, wherever possible, that the person responsible for ante-natal supervision should be responsible for attendance during labour"; and in paragraph 174 it gives reasons why this attendant should be the ordinary medical practitioner and not one of a "selected panel," whether whole-time or part-time.

Anaesthetics in Obstetrical Practice.

Other very important and valuable chapters of the report deal with the use of anaesthetics and analgesics in obstetric practice, with medical education in obstetrics, and with a national maternity service. On the first of these subjects three interesting memorandums are given in appendixes—one from the Royal College of Physicians of London, one from the British College of Obstetricians and Gynaecologists, and one from the British Medical Association. This last is printed in the Annual Report of Council (*Supplement*, April 19th, p. 163), and was approved by the Representative Body last month. It is perhaps the most emphatic of the three with regard to the use of anaesthetics and analgesics by anyone other than a registered medical practitioner; but the three pronouncements are in substantial agreement, and the committee does not differ from them in their conclusions.

Medical Education.

In regard to medical education, the most important suggestions of the committee are: (1) that the statements of the requirements of the General Medical Council should be made more clear and definite; (2) that the time given to midwifery and gynaecology (including infant hygiene) should be doubled—six months' whole-time hospital practice, including two months' residence in a maternity hospital; (3) that the number of labour cases personally attended (in the suggested alteration "attend and personally deliver") shall be thirty instead of twenty; (4) that ante-natal instruction shall entail the personal examination, under supervision, of not less than fifty pregnant women; (5) that there shall be at least eight attendances at an infant welfare centre; (6) that priority shall be given to the medical student over the student midwife in maternity hospitals, or possibly that students and midwives shall be educated together in this respect.

Training of Midwives.

The committee had before it the proposals which the British Medical Association was the first to make in any detail for a national maternity service, together with other subsequent and somewhat similar proposals made by the Departmental Committee on the Training and Employment of Midwives, by the Medical Women's Federation, and by others. The first of these has been issued separately as an Association document, and is now well known. The various schemes do not differ in essential respects, and the principles on which they are based and the requirements which they should embody are set out and endorsed by the committee. In a few respects the present report carries the suggestions somewhat further, and it may be noted that where in some minor points the schemes differ from one another it is to the British Medical Association's proposals that the committee more closely adheres. It avoids, however—perhaps wisely in the circumstances—those very difficult administrative and financial aspects of the scheme to which the Association's document gives some attention.

Another possibly wise feature of the report is that there are no definite recommendations tabulated at its conclusion. This will possibly induce a larger number of those interested to read the whole of the body of the report; and with great advantage, for it contains much valuable information, many wise comments, and a large number of practical proposals.

Scotland.

Lochaber Hospital Extension.

The Duke of York, on July 30th, inspected the new power works at Lochaber, one of the largest hydro-electric schemes in the world, and visited the town of Inverlochy, where the men employed at the works are accommodated; he also opened an extension of the Belford Hospital. Cameron of Lochiel, chairman of the hospital trustees, presided, and mentioned that this hospital had been originally completed in 1864; it now received an annual grant of £200 from the Department of Health, as well as a large contribution each year from the British Aluminium Company. For the past two or three years it had been realized that the hospital was in urgent need of reconstruction, and a sum of £4,500 had been raised for the present extension, which included a new operating theatre. The extension was intended to commemorate the late Dr. Cameron Miller, who had been greatly beloved in the district. The Mackintosh of Mackintosh paid a tribute to the memory of Dr. Miller, who, he said, had never spared himself; it was possible that his war work and the strenuous duties in connexion with the power scheme had combined to shorten his life. The Duke of York afterwards declared the extension opened, and unveiled a plaque at the entrance of the operating theatre which bears the following inscription: "This operating theatre was erected to the memory of Alexander Cameron Miller, M.D., Ch.M., F.R.S.E., T.D. Born, 12th August, 1861; Died, 31st December, 1927. For 41 years Medical Superintendent of this Hospital, beloved physician of the people of Lochaber. *Dileas Gu Bas.*"

Memorial to the late Dr. Alexander Stuart.

An extension to the Crieff and District Cottage Hospital, intended as a memorial to the late Dr. Alexander Stuart, was opened on July 29th. The extension was the gift of Mr. W. Gilchrist Macbeth of Dunira, who performed the opening ceremony. The present extension consists of a solarium fitted with vita glass, enabling convalescent patients to be exposed to the sunlight in all conditions of weather. There are eight beds and two cots. In handing over the gift to the hospital trustees, Mr. Macbeth paid a tribute to the valuable work performed in the Crieff district by Dr. Stuart.

Appointment for Edinburgh Radiologist.

Dr. J. M. Woodburn Morison, lecturer in radiology in the University of Edinburgh and radiologist to the Royal Infirmary of Edinburgh, has been appointed professor of radiology in the University of London, and medical director of the radiological department of the Cancer Hospital, Fulham, in succession to the late Dr. Knox. This is the first professorship of radiology to be established in this country. Its duties include the practice of both radiology and radium therapy at the Cancer Hospital, Fulham, and the instruction of students in these subjects. Dr. Woodburn Morison is a native of Ayrshire. After graduating

M.B. at Glasgow University in 1896, he became assistant radiologist to the Royal Infirmary of Manchester and consulting radiologist to the Ancoats Hospital, Manchester. He holds the diploma in radiology of the University of Cambridge, and has written much upon various aspects of the subject. Five years ago he was appointed radiologist to the Royal Infirmary of Edinburgh and lecturer in radiology to the University; recently he was elected a member of the Radium Commission and a member of the Radium Trust.

Central Midwives Board for Scotland.

The examinations of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, have just concluded, with the following results. Out of 112 candidates who appeared for the examination, 101 passed. Of the successful candidates, 28 were trained at the Royal Maternity Hospital, Glasgow; 24 at the Royal Maternity Hospital, Edinburgh; 5 at the Maternity Hospital, Aberdeen; 7 at the Royal Infirmary, Dundee; 16 at the Elsie Inglis Memorial Hospital, Edinburgh; 3 at Stobhill General Hospital; 2 at Barshaw Hospital, Paisley; 4 at the County and City of Perth Royal Infirmary; and the remainder at various other recognized institutions.

England and Wales.

The Order of St. John and the British Red Cross Society.

THE tenth report of the Joint Council of the Order of St. John of Jerusalem and the British Red Cross Society—the first to be issued from the new offices of the council at 12, Grosvenor Crescent—covers the period from January 1st to December 31st, 1929. The council records that the total number of patients assisted since the beginning of the war by the auxiliary hospitals for officers department is 18,028. The majority now receiving help are ex-officers suffering from tuberculosis. During the year assistance was given to 293 officers, 105 being new patients. Assistance included refunds to patients of hospital stoppages, allowances for special diet and convalescence, nursing home fees, and occasional contributions towards the cost of special appliances. In some cases full sanatorium fees were paid. Applications are now being made by officers who have allowed the official period of seven years since their demobilization to elapse before appealing to the Ministry of Pensions. Many of them have exhausted their private means in meeting the cost of treatment, and there is evidently little chance of their applications being favourably considered by the Ministry. Where full fees were paid the Officers' Association generally contributed half the amount. Eighty patients were admitted to the Hospital for Officers at Brighton, forty being sent by the Ministry of Pensions in the course of the year. In May, 1928, the Joint Council approved of a proposal that its hospital and medical services department should become a central bureau of hospital information under the auspices of the Joint Council and the British Hospitals Association. The success of the bureau is now regarded as assured. Through the close co-operation between the two associations the collecting of information has been greatly facilitated, especially as the offices of the bureau and of the British Hospitals Association are now in the same building. Much work was done by the bureau during the year in connexion with the effect of the Local Government Act on the voluntary hospitals. Its services were also sought in the distribution of funds of contributory schemes. As recorded in the tenth annual report of the voluntary hospitals in Great Britain (excluding London), the number of hospitals surveyed last year continues to increase. The necessary provision, however, of institutional treatment for sickness and accident, and the rapid growth of organizations in size and number, have made it desirable to have a wider and more comprehensive survey of every department of hospital work than is at present available. To meet this need a new year-book has been projected by the publishers of *Burdett's Hospitals and Charities*, which will extend the scope of that publication. In the arduous task of recording advances in the various branches of hospital activity the co-operation of the Joint Council and the British Hospitals Association has been obtained. Besides issuing memorandums on topics of special interest to hospitals, the bureau undertakes to give advice in regard to sites for buildings, plans, etc., and prepares reports for committees of management. Among the philanthropic services organized by various committees the report mentions that over 5,000 Christmas gifts were provided on Christmas Day, 1929, for ex-service pensioner patients in Ministry of Pensions hospitals and similar institutions, and that more than 14,000 ex-service pensioner patients in hospital were given motor drives or conveyed to entertainments and theatres during the year. The Emergency Help Committee continued to provide relief to thousands of sick and disabled ex-service men and their dependants. The total number of new cases assisted, or otherwise dealt with, during 1929 was about 23,000. Expenditure on grants for relief amounted to £60,926—£20,000 less than the figure for the previous year. It is satisfactory to note that £6,846 was received in voluntary refund of advances. This department also deals with applications from severely disabled pensioners to provide motor attachments for the tricycles supplied to them by the Ministry of Pensions. Since this work was undertaken in 1924 nearly 500 men have been loaned motors, which many of them use to travel daily to and from their work. In response to applications from Ministry of Pensions hospitals and other institutions treating ex-service pensioner patients, the Games and Comforts Fund made 343 grants of additional comforts and articles of recreation. The extensive and valuable work of the Home Ambulance Service has been recently referred to in these columns, particularly in connexion with road accidents. During the year the ambulances carried over 113,000 patients. A satisfactory report is given of the stores department, which not only supplies such articles as are required, but gives expert advice of the most suitable market for direct purchases. During armistice week articles made by patients in hospitals in London and in the provinces were displayed as part of the exhibition and sale of ex-service men's work at the Imperial Institute. Grants for ward industries were given to ten hospitals last year; seven of these were Ministry of Pensions institutions. The Finance Committee reports that the expenditure for the year exceeded the income by £1,780, which compares with a deficit of £814 for the previous year. The Joint Council expresses the hope that its income will increase with improvement in industrial conditions.

Local Authorities and Cancer Research.

The seventh of a series of memorandums relating to the causation, prevention, and treatment of cancer has now been issued by the Ministry of Health, accompanied by an explanatory circular (No. 1136). The present memorandum indicates how local authorities may take steps to obtain more complete knowledge of the reactions between cancer and the community, thereby rendering it possible to bring into effect local ameliorative measures. The Minister invites the councils of counties and county boroughs to consider the initiation in their areas of an attempt to ascertain the ways in which the environmental, economic, social, or other conditions of cancer patients affect their chances of cure and relief of suffering. Contact with patients would in the first instance be limited to those applying for treatment at the local hospitals, and in friendly collaboration with the medical staffs. A series of questions is suggested in order to indicate the general lines upon which the early investigations might proceed. It is thought that the essential information could be obtained through the agency of suitable non-medical members of the staff of a health department working under the fairly close supervision of a medical officer. As the result of analysing a collected sample of individual histories obtained in this way, local authorities might find it possible to improve the lot of cancer patients in their areas by giving individual advice and help, and by improving the existing facilities for dealing with the disease or devising new ones. Mention is made of the collective investigation into the incidence of cancer and its history

after treatment which was initiated by the British Medical Association; and the belief is expressed that the new inquiry would dovetail conveniently with this, both being benefited thereby. Attention is drawn to the advantages to be gained by co-operation between medical officers of health and the Departmental Committee on Cancer.

India.

Hospitals and Dispensaries in the Central Provinces and Berar.

A POLICY of progress and expansion in the provision of medical relief is outlined by Colonel W. V. Coppinger, I.M.S., Inspector-General of Civil Hospitals, in his report on the hospitals and dispensaries of the Central Provinces and Berar for the triennium which ended in December, 1928. At that date the number of dispensaries had increased from 303 at the close of the previous triennium to 335, and their services were supplemented by ten "cheap plan" dispensaries and thirty-nine travelling dispensaries controlled by the director of public health. Several local bodies had taken advantage of the scheme of "cheap plan" dispensaries, for which the Government provides the staff and one-fourth of the recurring expenditure, the remaining amount being raised by the local body concerned. Travelling dispensaries, which were steadily gaining popularity, were found particularly useful in distributing quinine to patients in malarial districts. As the Victoria Hospital at Jubbulpore and the main hospital at Raipur have become Government institutions, there is now, with one exception, a large and fully equipped Government hospital in every division in the province. The Irwin Hospital, which has replaced the main hospital at Amraoti, was opened by the Viceroy in 1928. Other medical buildings constructed during the triennium included two new hospitals for women. One of the principal features of the report is the provision of medical aid for women by women doctors. Eleven women assistant surgeons and eleven assistant medical officers were attached to district and other important hospitals in areas where no separate women's hospitals had been established. These appointments were made in pursuance of the Government's policy to provide a woman doctor at one town in every district. No reluctance has been shown by the public in taking advantage of these developments. The percentage of women treated in the Dufferin hospitals rose from 13.2 (in 1925) to 17.5. An increase of 8,000 in the number of in-patients is recorded, and, although 254 beds were added during the triennium, arrangements were being made at the date of the report to extend the accommodation in several of the main hospitals. The expansion in the adult services has been accompanied by a more widespread recognition of the importance of child welfare. Health propaganda was carried out in towns and schools by medical officers in charge of all the outlying dispensaries. Progress in all these departments has been hampered, however, by an inadequate supply of trained nurses for both private and hospital patients; even the best hospitals apparently were unable to provide first-class nursing. The provision aimed at is one nurse to every five beds in general hospitals, and one to three beds in women's hospitals. At the Victoria Hospital, Jubbulpore, there were only four nurses for 105 beds. The whole question of the organization and training of nurses was being considered by the Government when the present report was issued. Another problem was the treatment of patients in rural areas. Since the close of the triennium a scheme has been put into operation for subsidizing private practitioners who consent to settle in approved centres. The Government has also sanctioned the institution of ten scholarships of Rs.20 a month for study at Benares University with the object of encouraging practitioners possessing recognized qualifications to improve the indigenous systems of medicine. In order that rural areas should ultimately receive the benefit of these provisions it is proposed to make grants-in-aid to local bodies up to half the expenditure incurred by them on this account, subject to suitable conditions. Large grants have already been allocated for the study and treatment of leprosy in the province. In 1928 treatment was given to 1,459 lepers, compared with 1,051 in the previous year; the increase is attributed mainly to effective propaganda. One specialist and twenty assistant medical officers have been appointed for leprosy work in Chhattisgarh; the method employed of visiting lepers in or near their homes and establishing treatment centres in selected areas is expected to produce better results than the policy of segregation. At the treatment centre at Akot one hundred lepers attended twice a week from the neighbouring villages. Seven leprosy clinics have been opened at the headquarters of seven districts; moreover, the accommodation in the eight leper asylums is being gradually increased.

Medical Facilities in Bihar and Orissa.

A critical period in the development of medical policy in Bihar and Orissa is indicated in the triennial report of the hospitals and dispensaries in that province for the years 1926–28. The ideal aimed at is the provision of a dispensary in every police station area, so that treatment may be available for any sick person within a distance of five miles. Although this ideal had not been attained in any district at the date of the report, a considerable expansion is recorded in the general facilities for medical relief, eighty-two new hospitals and dispensaries having been opened during the triennium. In many districts, however, the expenditure incurred for this purpose exceeded the minimum sum laid down by statute, in spite of augmented Government grants. One reason appears to be a persistent indifference towards the financial needs of local hospitals; no increase is reported in charitable contributions. This attitude is attributed partly to the fact that the public is inclined to regard medical relief as one of the returns expected from taxation, and partly to the widely recognized practice of the comparatively well-to-do of seeking free treatment at charitable institutions. Proposals for authorizing hospital committees to impose small fees on these patients were under the consideration of the Government. The report states that such continued indifference is likely to threaten future progress, especially since all the large hospitals in the province are now dependent on Government support; formerly, as local board institutions, they were directly supported by local funds. Another aspect of medical relief, referred to by Colonel W. S. Willmore, I.M.S., Inspector-General of Civil Hospitals in the province, is the necessity for setting a limit to the amount of work that can be efficiently carried out by medical officers. Undue attention, he thinks, has hitherto been paid to the amount of work undertaken in dispensaries, without adequate regard for the efficiency of the treatment. This tendency in his opinion must impair the prestige of medical science as practised in the West, particularly as it is being brought more and more into competition with the indigenous systems of medicine. In this connexion an outstanding problem in the province has been the provision of medical aid to women, not only on account of the deficiency in the supply of women doctors, nurses, and trained midwives, and the reluctance that exists among certain classes to accept the services of male doctors, but also because most women, influenced by custom and prejudice, have been unwilling to take up medicine and nursing as professions. At the date of the report not a single woman had applied for admission to the medical college, and only five were attending the medical school at Cuttack. No private nursing homes were available in the province, and there appear to have been very few private nurses. Apart from the financial difficulties involved in the duplication of staff, the only permanent solution seems to be the gradual removal of restrictive codes. In this matter some headway is reported to have been made during the last year of the triennium. A great deal of medical relief, however, was provided for women of the humbler classes. The number treated as out-patients in 1928—although only a third of the number of men—was over 9 million, while the number of in-patients increased from 6,000 to 15,000 since the constitution of the province. Notable progress is also recorded in maternity and child welfare. In Patna, for example, no deaths from tetanus

or sepsis had occurred for over five years among the patients who were under the care of the maternity supervisor and her staff. Several special institutions, established in the province during the triennium, are described in the report, including a sanatorium for tuberculous patients at Itki, a Pasteur Institute at Patna, and a bacteriological laboratory at the Patna Medical College. The transfer of the Radium Institute from Ranchi to Patna Medical College Hospital has greatly extended the scope of radium treatment and provided valuable opportunities for study and instruction. A campaign has been instituted against leprosy, and large sums are being spent on segregation and treatment.

Correspondence.

OBSERVATION AND EXPERIMENT.

SIR,—No one can have read Mr. Wilfred Trotter's essay in the *Journal* of July 26th without being grateful to him for such an illuminating presentation of the methods of investigation, and without being stimulated by it. Nor can anyone fail to realize how important it is that we should grasp the essential truths that he unfolds before us. It is at the same time somewhat depressing to find that in the hierarchy of endeavour such a lowly place is given to clinical observation, and I cannot help wondering whether the melancholy with which he recognizes the necessity for a genius and a special aptitude of mind, if advance is to be made along these lines, is completely justified. It may be so at the moment, but need it be so for the future?

I am among those who think that the pendulum has swung somewhat too far away from clinical observation, particularly where the teaching of students is concerned. In these days of short cuts and labour-saving devices I cannot help thinking that the methods of careful observation, reflection, and deduction, if properly inculcated, would not only ensure a habit of mind attuned to the reception of new ideas, but might also provide a vast army of workers eager to obtain from their clinical material some clue to the mysteries that surround so many aspects of disease.

I am certainly in agreement with the view that the production of a mass of statistics is largely valueless, and that haphazard observation as a bolster to *a priori* conclusions may be sterile, but it should be our endeavour to provide the possibility of a more enlightened form of research and to train more carefully the workers of the future.

The human body in health and disease is both our raw material and our laboratory; its reactions to environment, to infection, and to mutilation provide the problems that we have to solve. Who is so fitted to find out what these problems really are as the skilled clinical observer, and who is more likely to direct the investigation along the right lines? His own observations need not be entirely without result if they are conducted with an inquiring mind. The path may be long, the progress is necessarily slow, and the difficulties are great, but the fact that they are somebody's symptoms which we are studying need not destroy their value as material for science.

As a surgeon I can, for instance, study nature's effort at repair, and perhaps wonder why when one has removed large portions of the skull in the checking of an osteomyelitis new protective bone is so quickly formed, while after a submucous resection of the septum there is apparently no attempt at the regeneration of the cartilage removed. Or, again, I may observe that radium will destroy completely a cancer of the tonsil, and yet seem to drive the cancer cells to some more distant spot with the formation of a growth in this new situation. Again I wonder why, and to wonder sufficiently is halfway to finding out. We all have a sufficiency of material to our hands, and no one is so busy that he cannot think if he trains himself to do so. In time experience comes, and experience does not only teach, it also performs. Who can tell what far-reaching results such performance may reveal?

We should be thankful for every new method of investigation, and I would have the clinical observer employ every weapon that has been forged for his use, but I will not despair of result or lose my hope that clinical observation will remain the living root of our tree of knowledge.—I am, etc.,

London, W.1, July 29th. WALTER HOWARTH.

SIR,—Mr. Wilfred Trotter's article in the *Journal* of July 26th contains an admirable appreciation of the relative merits and shortcomings of the experimental and the clinical methods in the study of disease. It balances them more evenly than Sir Thomas Lewis's recent contribution on the same subject appeared to do. Although Mr. Trotter does not mention it specifically, there is one region of medicine in which the clinical method has superior advantages, and must remain, at least for a long time, the principal method of research; I mean the region of psychological medicine. Here the subject-matter is the whole man, as a social unit, and the opportunities of arranging the conditions in the manner of an experiment are exceedingly rare.

It is necessary, moreover, to distinguish an intermediate method of investigation, between the purely experimental method on the one hand and the purely clinical on the other; I refer to the introduction into clinical work of instruments of precision, which serve to give an air of scientific accuracy (often a spurious air, it is true) to clinical research. The sphygmomanometer and the haemocytometer are examples of these instruments, and they are often helpful; but in psychological medicine importations of this kind from the experimental field are wanting in usefulness. The psychogalvanometer, so-called, is of sadly little service. There is no instrument yet devised that can read a man's thoughts or ascertain his motives.

There is, of course, a large variety of mental syndromes of the organic reaction type, for which biochemistry and histopathology offer approximately causal explanations. But far more numerous in practice are the psychoneuroses and the psychoses, the most important of which have no causally significant physical concomitants. The advances made by the clinical method applied to these groups in the last thirty years have often been brilliant; while the assaults made from the laboratory and more experimental side, although very numerous, have as a rule been comparatively unavailing. There is real promise in Pavlov's work, but here the gap between animal experiments and clinical observation is at its widest, and facile analogy is peculiarly misleading.

A plea based on these considerations may well be made, especially in this country, for the intensive clinical study of mental illness, both inside and outside of asylums; for the clinical method in this field is not only intensely interesting in itself, but unrivalled for the understanding of the mental conditions in question. It is true that a special type of clinical observer succeeds best in this, the type often called intuitive. But it seems likely that clinical intuition, here as elsewhere, is simply the result of long study of human nature, organized by long practice, and operating largely unconsciously. The triumphs of intuition in psychological medicine are probably, therefore, essentially the fruits of the observational method.—I am, etc.,

London, W.1, July 30th. R. D. GILLESPIE.

PARTURITION AND PHYSICAL TOIL.

SIR,—This is the season when the "medical specialist" is wont to write articles for the newspapers warning holiday-makers against the dangers of unaccustomed exertion. He teaches, in effect, the impossibility of performing hard work without suffering for it, unless one has previously undergone a course of training to fit one for hard work. I suggest that parturition is hard physical labour, not to be performed without undue exhaustion unless the woman is capable of hard work. Women of the working class, for example, are always kept in training for hard physical work by their daily round of toil, whereas women of the upper class are not; such differences of "training"

determine, I think, those differences of "fibre" on which the gynaecologist is apt to reflect.

In India, coolie women do much of the carrying when canals are dug or railways are built, and I have been told by those who have been in charge of such operations that it was quite usual for a coolie woman to work until the actual onset of parturition, and to return to work again immediately after the act was over. I take it that parturition is a simple process for these women, simply because they are kept in such perfect training for hard physical work. If this is correct, some of the present-day care of pregnant women seems misdirected effort. They ought not to cease physical labour well before their due time, but, on the contrary, keep at work or in training, right up to the actual event. In making the suggestion I am well aware of the *post hoc propter hoc* argument which would make some form of heavy lifting precipitate labour, but I do not know if it has yet been shown that physical work can precipitate labour in a woman entirely free from luetic taint. Indeed, if hard physical work had any regular definite influence in precipitating labour the vast majority of women in this world should miscarry. On the other hand, it may be that specific types of work have a precipitating action, whereas work *per se* has not: if this is so, research might well be directed towards finding out if unfavourable types of work exist.

Another point worth considering is the possible favourable influence of oxygen administration on women in labour who are not accustomed to hard physical work. Physiologists have shown that an untrained man with the aid of oxygen can perform without undue fatigue work that would otherwise completely exhaust him, and so, I take it, a woman should also be able to perform with the aid of oxygen, and without exhaustion, work that would otherwise completely exhaust her. It is also in the fitness of things that the untrained woman requiring oxygen could probably afford to pay for the "extra."—I am, etc.,

Lucknow, July 4th. W. BURRIDGE.

X-RAY TREATMENT OF TONSILS.

SIR,—The letter from Dr. Warner Collins on July 18th (p. 122) should not be allowed to pass without challenge. My plain statement (June 28th, p. 1197) of a "50 per cent. or less of the erythema dose . . . given in fortnightly or longer intervals" is travestied to imply that I give a "50 per cent. erythema dose twice weekly"—that is, four or more times the dose I use and recommend. May I repeat that there is no risk of dermatitis if accurately measured filtered doses are given as recommended? In young children 20 per cent. doses, or in sun-sensitive adolescents or adults 30 per cent. doses, may be found suitable; the patients, as always, must receive individualized treatment.

I am astonished that Dr. Collins can think a shrinkage to the normal size is "the greatest objection to the *x*-ray treatment." By pathological enlargement the mouths of the crypts are often blocked, and pus retention and swamping of the defence follow. When the lymphoid substance is reduced the crypts open out, and all becomes "normal." The dosage is not sufficient to lead to fibrosis, as he wrongly infers. Many patients after irradiation show a smooth, soft, supple tonsil surface with no visible crypts; others show flat gutter-shaped crypts in which no retention could take place. Glands already hard and fibrous, following repeated suppurative attacks, give an incomplete response.

As to the hypothetical damage to the thyroid and parathyroids by secondary rays, I have found that during a treatment, with the usual localized beam behind the angle of the jaw (projecting forwards, inwards, and upwards on to the tonsil and adenoid site), and the usual lead-rubber protection on the head and neck, there is no measurable pastille change (and only a slight dental film change) on the skin over the thyroid gland—that is, much less radiation than the thyroid receives during an *x*-ray exposure of the lower cervical spine. Surely Dr. Collins does not mean to assert that short *x*-ray diagnostic exposures "damage" normal organs or tissues, but this is what his statement about "secondary *x*-radiation" implies.

As to antibodies being formed in the tonsils, the functions of the lymphatic glands as clearing agents for the tissues were well given as far back as 1911 in Luciani's *Physiology* (vol. i, p. 533). Later work on the reticulo-endothelial system has confirmed and elaborated these views. Thus Aschoff, in his lecture on this subject published in 1924, says it is clear that bacterial toxins are fixed and absorbed, while antibodies are produced by the spleen and reticulo-endothelial system. Topley and Wilson, in the chapter on the site of the formation of antibodies in their *Principles of Bacteriology and Immunity*, write: "The conclusions to be drawn do not seem to be in doubt . . . there is ample evidence that the organs and cells, which have been shown to be concerned with the clearing mechanism of the tissues, are also concerned in some way with the formation of the sensitizing antibodies." In the next chapter they consider "local immunity" in a particular area such as the skin. The latter theory may be still "sketchy in the extreme"; but the general view as to antibodies being formed in lymphatic glands and other parts of the reticulo-endothelial system does not appear any longer to be questionable. Moreover, the widespread development in mammals and birds of subepithelial lymphoid tissue just where bacteria most flourish (fauces, ileum, and caecum) shows its value as a defence mechanism.

My views about the value of the tonsils were gained many years ago from Professor Lovell Gulland. I am glad to find that there are now other supporters of his opinion, as, for example, Professor Kenelm Digby in his *Immunity in Health*. Mr. Irwin Moore, in his *Tonsils and Adenoids*, discusses the theories as to their function, but ignores the recent literature on *x*-ray treatment. Dr. William Steuart appears to have been one of the first to treat patients with *x* rays (*British Medical Journal*, 1913, vol. i, p. 1157). Those who have followed the vicissitudes of medical fashions in history will not wonder at the slow progress of such a new and valuable conservative treatment, nor will they exclude the possibility that one day tonsillectomy may have as restricted a scope as blood-letting has now.—I am, etc.,

J. H. DOUGLAS WEBSTER, M.D., F.R.C.P.Ed.

London, W.1, July 26th.

THE PERFORMANCE OF NECROPSIES BY GENERAL PRACTITIONERS.

SIR,—Is it not time a period was put to the indiscriminate performance of post-mortem examinations by general practitioners at the command of coroners? As a rural practitioner I reluctantly undertake this task about once in two years, and I expect I possess about as much (or as little) knowledge of morbid anatomy as my brethren in similar circumstances, and I am getting a little exasperated at having to outrage my conscience every time I report on the cause of death. As a student I performed the prescribed number of necropsies, and during two years as a house-surgeon in busy hospitals a considerable number of examinations fell to my lot. But that is many years ago, and I have forgotten all about it. One would not mind having a *large* number of post-mortem examinations to do, for then one could become proficient with some hope of remaining so, but I think the occasional necropsy by a general practitioner under the most adverse circumstances, with no facilities and with no skilled assistance, is a ghoulish farce which ought to cease.

The coroners are not to blame. They apparently are bound to ascertain the cause of death, and by hook or by crook they must extract it from the doctor. Once, in a spasm of candour and honesty, I stated at an inquest that I had not the slightest idea what the individual whose corpse I had mutilated had died of. The coroner commended my honesty, marvelled at the complexity of the problem, but pointed out that such high-souled ignorance was of no avail for his returns, and that if I could not give the exact cause of death I must give the most likely. My pathological skill had reached so far as the detection of a few green peas in the stomach, and a few adroit questions of the "would it be in any way possible" order, resulted in the recording as my solemn opinion that

the deceased died of embarrassment of the heart caused by a surfeit of green peas! And yet the coroner and I were tolerably honest men, doing our best under rather difficult circumstances.

I think there is nothing to be gained and everything to be lost by professing a knowledge we do not possess, and unless I am a solitary monster of necrological ineptitude, there must be hundreds of practitioners who feel as I feel. Let it be freely admitted that morbid anatomy is a difficult and intricate art requiring constant exercise for its perfection, and that it is useless and unreasonable to expect any general practitioner chosen at random to possess or maintain the requisite skill. One might then be free from the nightmare of the ever possible "cause célèbre," with the carefully coached and politely ironical cross-examining counsel turning one's feeble post-mortem report into humorous copy for the sensational press.

Neither is there any need, in these days of rapid communication, for the decencies of private life to be violated by these charnel house impromptus beneath stairs. Let there be central mortuaries in the sizeable towns, with facilities for necropsies to be performed by those whose training or inclination tends that way, and let there be suitable conveyances for the speedy removal and return of bodies requiring such examination. I need not enlarge further upon the revolting aspects of private post-mortem examinations. They are distressing for the bereaved, embarrassing for the surgeon, and useless for the elucidation of the truth. I enclose my card, and remain, Sir, yours, etc.,

July 22nd. RUSTICUS.

FIRST AID IN SERIOUS ACCIDENTS.

SIR,—In nearly every account of a fatal accident nowadays, whether from motor, aeroplane, or whatever else, one reads, almost as a matter of course, the words: "he died on the way to hospital." When a patient reaches our care after any "concussion" we enjoin complete rest of body and mind. Nature helps us by making the patient unconscious. Would it not be possible to educate the public and ambulance men to realize that complete rest is needed *at once*, and that the safest thing to do for a previously healthy person suffering from shock is to secure absolute quiet? If the constitution has been strong enough to resist a fall from the skies or the jarring of a collision, surely, if left alone, it may rally altogether. Fluid carried in a vessel rocks about, and the fluids in the ventricles of the heart and brain are surely rocked by the lifting, pulling, and "taking to hospital."

Should we not inaugurate a rule whereby the injured person is left where he lies until the medical man called in declares that it is comparatively safe to move him? Certainly these accidents often occur in places where the traffic may be impeded, but since we hold up traffic for a broken road, why not for a broken man?—I am, etc.,

Tunbridge Wells, July 31st. H. M. HENDERSON.

SPONTANEOUS SURGICAL EMPHYSEMA.

SIR,—I have noted with interest certain references to cases of spontaneous surgical emphysema in recent issues of the *British Medical Journal*. While resident surgical officer at Ancoats Hospital I saw a man who had a very extensive emphysema, starting apparently in the neck and spreading, within the course of twelve hours, down below the nipple line. It followed on tooth extraction with a local anaesthetic, so that, as was suggested, any possibility of lung damage during the struggles of incomplete anaesthesia was excluded. The condition cleared up in the course of a few days without event, although the patient himself was considerably alarmed.

I can offer no explanation, and hesitate to postulate a similarity to cellulitis with gas formation; it is perhaps conceivable that a not very virulent organism might be capable of producing a considerable amount of gas.—I am, etc.,

London, July 26th. S. M. POWER, F.R.C.S.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on August 2nd the following medical degrees were conferred:

D.M.—E. Scott.
B.M.—W. D. T. Brunyate, A. R. Bowtell, A. Guirdham.

UNIVERSITY OF CAMBRIDGE.

DR. G. H. F. NUTTALL has been re-elected to the Quick Professorship of Biology for one year from November 1st.

At a congregation held on August 2nd the following medical degrees were conferred:

M.D.—H. V. Dicks, G. W. Bamber.
M.B., B.CHIR.—*C. I. C. Gill, R. E. Barnsley, J. D. Simpson.
M.B.—F. A. Richards, E. J. Pye-Smith, R. L. Osmaston, B. C. Tate.
B.CHIR.—*A. C. Crooke, *H. W. Sadlier, R. S. Stacey, B. C. Nicholson, P. G. Levick, V. P. Paxon, I. J. Franklen-Evans, J. S. S. Fairley.

* By proxy.

UNIVERSITY OF LONDON.

DR. J. M. W. MORISON, M.D.Glas., F.R.C.P.Ed., has been appointed to the University Chair of Radiology, tenable at the Cancer Hospital (Free). He is now lecturer in radiology at the University of Edinburgh.

Dr. W. Robson has been appointed to the Board of Examiners for the second medical examination, Part I, in the place of Dr. J. A. Hewitt, who was unable to act through illness, and Mr. C. P. G. Wakeley has been appointed fifth examiner for the M.B., B.S. (surgery) examination, to act if required.

The regulations for the M.D. examination, Branch 1 (Red Book, 1929–30, p. 198; Blue Book, September, 1929, p. 266) have been amended by the insertion after "A clinical examination" of the words: "An oral examination at the bedside."

Dr. A. M. H. Gray has been appointed a member of the Finance and General Purposes Committee of the National Post-graduate School of Radiography.

Sir Cuthbert Wallace, K.C.M.G., has been elected chairman of the Research Funds Committee.

The annual reports of the superintendent of the Brown Animal Sanatory Institution for 1928 and 1929 record that during the former year 2,298 animals were brought to the institution, and that in 1929 the number was 2,179. The five lectures required under the will of the late Mr. Brown had been delivered by the superintendent at the Royal College of Surgeons during December, 1928, and 1929, the subjects of the lectures being respectively "The role of bacteria in Nature" and "The relation of pathogenic to saprophytic micro-organisms." Dr. Nathan Raw had continued his investigation on the attenuation of tubercle bacilli, with special reference to the question of immunization against tuberculosis. Mr. Stanford Cade had carried out some experiments on rabbits, with the object of testing the tolerance of the animals to solutions of colloidal bismuth with glucose, and to ascertain the relation between the weight of the animal and the amount of bismuth possible to inject intravenously. The experiments were a preliminary to some work to be done at Westminster Hospital in connexion with the radium treatment of cancer. The superintendent had continued his work on the ultra-microscopic viruses and on the essential substance "vitamin" obtained from acid-fast bacilli.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

The following scholarships have been awarded for the session 1930–31:

St. Dunstan's Medical Exhibition, Miss J. W. Ellinger; Isabel Thorne Scholarship, Miss A. L. Musgrave; Sir Owen Roberts Memorial Scholarship, Miss F. C. Naish; Mabel Sharman Crawford Scholarship, Miss B. Clark; Alfred Langton Scholarship, Miss P. N. Greene; Ellen Walker Bursary, Miss S. W. Pyddoke; Flora Murray Bursary, Miss K. M. Jones; Special Bursaries awarded by Medical School, Miss B. D. Corner, Miss B. Hay-Cooper, Miss M. H. Mayeur, Miss P. Wade; Julia Ann Hornblower Cock Post-Graduate Scholarship, Miss C. Day.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A quarterly comitia of the Royal College of Physicians of London was held on July 31st, when the President, Sir John Rose Bradford, was in the chair. The following Fellows of the College were elected officers for the ensuing year:—*Censors:* Frederick J. Poynton, M.D., W. Langdon Brown, M.D., Charles R. Box, M.D., Sir Charlton Briscoe, Bt., M.D. *Treasurer:* Sidney P. Phillips, M.D. *Registrar:* Raymond Crawfurd, M.D. *Harveian Librarian:* T. H. Arnold Chaplin, M.D. *Assistant Registrar:* Robert O. Moon, M.D.

Medals and Scholarship.

The Moxon Gold Medal, awarded every third year to the person who is deemed to have most distinguished himself by observation and research in clinical medicine, was awarded to Dr. Frederick Parkes Weber. The Weber-Parkes Prize and Medal, awarded every third year for work on the etiology, prevention, pathology, or treatment of tuberculosis, were awarded to Professor S. Lyle Cummins, C.B., C.M.G. The Murchison Scholarship was awarded, after a competitive examination in clinical medicine, to John St Clair Elkington, M.B., and Kenneth Moorhouse Robertson, M.B., jointly.

Harveian Oration and Bradshaw Lecture.

The President announced that he had appointed Dr. Robert Hutchison to deliver the Harveian Oration, and Dr. J. S. Fairbairn the Bradshaw Lecture in 1931.

Appointment of Representatives.

Sir John Rose Bradford was appointed a representative of the College on a committee appointed by the Board of Control to advise on certain matters under the new Mental Treatment Act.

Sir George Newman and Dr. J. W. McNee were elected representatives of the College on the Executive Committee of the Imperial Cancer Research Fund.

Dr. A. F. Voelcker was appointed to represent the College at the celebration in October of the jubilee of the foundation of Mason Science College, Birmingham, and the thirtieth anniversary of the granting of the University charter.

Lectures.

The following acceptances of appointments were announced: Dr. Macdonald Critchley as Goulstonian Lecturer for 1931; Sir William Willcox as Lumleian Lecturer for 1931; Sir Andrew Balfour as FitzPatrick Lecturer for 1931; Dr. Samson Wright as Oliver-Sharpey Lecturer for 1931; Dr. J. W. McNee as Croonian Lecturer for 1932.

Membership.

The following candidates, having satisfied the Censors' Board, were admitted Members:

Philip Jacob Alpers, M.B.Melb., Benjamin Barling, M.D.Lond., Innes Albert Brodziak, M.B.Sydney, James William Brown, M.D.Lond., Eleanor Mildred Creak, M.B.Lond., Philip Edwin James Cutting, M.D.Lond., John Dockray, M.B.Camb., Mohammed Abdul Aziz El Gammal, L.R.C.P., John Callis Hawksley, M.B.Lond., Roy Humphrey Howells, M.B.New Zealand, Charu Chandra Kapila, M.B.Rangoon, Gwash Lal, M.B.Punjab, Edward William Lindeck, M.B.Camb., Frederick Martin Lipscomb, L.R.C.P., Florence Louis, M.B.Lond., Thomas Keith Selfe Lyle, M.B.Camb., Harry Edward Mansell, M.B.Oxon., Dhirendra Chandra Mazumdar, M.B.Allahabad, Andrew John Morland, M.B.Lond., Santosh Kumar Mukhopadhyay, M.B.Calcutta, Margaret Geraldine Phoebe Reed, M.B.Camb., Edward Graeme Robertson, M.D.Melb., Gerald Richmond Anderdon de Montjoie Rudolf, L.R.C.P., Ismail Ahmed Sabri, M.B.Cairo, James Dundas Simpson, L.R.C.P., Eliot Trevor Oakeshott Slater, L.R.C.P., John Smith, M.D.Aberd., Bashi Lal Taneja, M.B.Punjab, John Richard Hugh Towers, M.B.Camb.

Licences and Diplomas.

Licences to practise physic were granted to 141 successful candidates, and Diplomas in Public Health, Ophthalmic Medicine and Surgery, and in Tropical Medicine and Hygiene were conferred jointly with the Royal College of Surgeons. (The lists of the successful candidates are published in the report of the meeting of the Royal College of Surgeons printed below).

The following diplomas were also conferred jointly with the Royal College of Surgeons:

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—C. A. Amesur, A. B. Berkowitz, E. G. Dermer, A. M. El Hakim, A. El Sayed Handousa, B. Hiller, I. Kallmeyer, F. T. Land, M. R. Levey, H. Lewis, G. R. Marcano, F. G. Meade, F. Phillips, S. N. Prasad, H. W. Savige, G. S. Seed, S. K. Sen Gupta.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—R. D. Curran, J. W. Fisher, J. Flind, R. N. B. McCord, W. M. McGrath, W. Ogden, D. N. Parfitt, R. Ström-Olsen, V. Vassallo, A. W. Watt.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council of the Royal College of Surgeons of England was held on July 31st, with Lord Moynihan, the President, in the chair.

Gold Medal.

The honorary Gold Medal of the College was awarded to Mr. R. Lawford Knaggs, F.R.C.S., in appreciation of his services to the museum, more especially in preparing a catalogue of and revising the Strangeways collection of specimens illustrating arthritis.

Scholarship.

The first Macloghlin scholarship for medical students was awarded to L. J. Honeywill of Bournemouth School.

Examiners.

Mr. Frank Coleman, *M.C.*, dental surgeon to St. Bartholomew's and the Royal Dental Hospital, was elected a member of the Board of Examiners in Dental Surgery.

Mr. C. H. Fagge and Dr. R. G. Canti were elected Examiners in Pathology under the Examining Board in England.

Professors William Wright and C. Lovatt Evans were nominated to conduct the primary examination for the Fellowship in Australia in 1931.

Diplomas.

Diplomas of Membership were granted to the following candidates, who had passed the final examination in medicine, surgery, and midwifery of the Examining Board in England:

Constance E. Allen, S. G. Allen, R. E. Angel, Lily Arratoon, J. Aytoun, F. G. Badger, W. I. Bain, W. L. H. L. Bell, S. W. T. Bentall, A. C. Bhardwaj, I. Billig, W. R. Bion, A. N. Birkett, S. Bochenek, Kathleen M. Bodkin, B. F. M. Bond, F. K. Boston, L. V. O. Brown, A. Buch, W. R. Burrows, M. L. Bynoe, E. C. Campbell, G. F. Carey, J. Chamberlain, H. M. Chappel, L. Charney, W. F. Church, L. P. Clarke, A. H. Clegg, D. H. Collins, R. V. S. Cooper, W. C. Cresdee, R. M. S. Cross, Elizabeth T. Davies, L. S. Davies, C. G. S. De Silva, C. H. Devin, D. Divine, R. H. Dobbs, J. A. Doherty, N. R. Donald, Mary G. H. Edwards, A. Elliott, M. M. El Mishad, A. A. G. Flemming, G. M. Flemming, E. V. P. Fox, Margaret L. Foxwell, P. I. Franks, L. P. Friedman, Lorna M. A. Goulden Bach, C. A. Grant, E. R. Greathead, G. Hale, J. T. P. Handy, Eileen E. Harvey, R. M. Harvey, Gladys M. Herbert, Constance M. Hoare, H. L. Hodgkinson, J. C. de V. Hutchinson, E. B. Jackson, E. J. Javeri, G. H. Jennings, H. B. John, I. G. Jones, W. D. G. Jones, C. R. Kenchington, P. A. E. Lansel, S. R. Ledger, J. C. Leedham-Green, Edna Lock, R. F. Lomax, R. P. Lucas, H. O. Lyne, Moyra I. Macnaughton-Jones, F. G. Maitland, H. S. A. Malik, P. T. Merlin, Elizabeth T. Mess, Blodwen Morgan, G. D. Morgan, K. I. Nicholls, T. C. Outred, G. A. Y. Parker, C. F. L. Patterson, G. H. Pearce, R. B. Peckham, N. S. Plummer, N. H. L. Ridley, R. S. Risk, D. M. Roberts, J. M. Robertson, L. K. Robson, A. L. Rowson, M. H. Salaman, F. M. Sandford, K. C. Sarkar, J. M. Searle, T. S. Severs, Dorothy A. Sharpe, C. J. C. Siggers, W. W. Simkins, C. H. Sims, K. C. S. Skene, M. W. Smith, J. Sowerbutts, A. A. Staunton, D. J. R. Steen, G. V. Steward, J. G. Stewart, H. M. Strover, H. B. Swift, K. T. Taskar, C. E. Taylor, M. R. Thomas, K. S. Thompson, C. J. L. Thurgar, T. F. Tierney, O T. Wade, W. N. P. Wakeley, E. C. Watson, J. C. S. Wells, Margaret E. Williams, T. C. Williams, T. G. Williams, B. Willinsky, Maureen D. Willmott-Evans, F. W. Willway, W. E. Wimberger, H. A. M. Wintle, Barbara E. Woodhead, F. C. A. Wright.

The following diplomas were granted jointly with the Royal College of Physicians:

DIPLOMA IN PUBLIC HEALTH.—Edith I. L. Abbott, Iris I. G. Adams, H. W. Allen, J. V. Almeyda, G. R. M. Apsey, S. K. Arora, E. R. Boland, M. S. Chadha, S. Dakshinamurty, Edith M. Davies, I. G. Davies, P. T. J. Doss, S. W. Eveson, A. H. Gale, K. K. Goh, Phyllis M. Grainger, A. Hamid, E. B. Jones, B. N. Khanna, N. K. Kumaran, B. K. Lal, B. D. Malhotra, B. D. Mallick, R. Mansoor, H. D. M. L. Murray, W. R. Nash, G. E. B. Payne, S. M. Rahman, G. A. Roche, A. Shafi, J. Spencer, M. P. Srivastava, V. E. Whitman.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—Dorothy R. Adams, T. S. Blacklidge, H. Chaudhuri, M. A. Contractor, E. R. Cunningham, J. Dadabhoy, D. R. Gawler, L. M. Green, Millicent Hamilton-Johnstone, H. V. Ingram, S. Lal, Laura M. Ligertwood, S. S. Lindsay, L. Mahadevan, T. M. Mansfield, A. B. Rao, C. N. Smith, L. Staz, L. Tarneja, H. Tomkin, T. & B. Travers, D. K. Weston.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—C. A. Alvarado, T. F. Anderson, W. K. Connell, A. B. Cook, M. K. Kelavkar, E. M. Lourie, D. R. McPherson, F. Marsh, T. H. Nolan, P. K. Rao, C. E. Roberts, R. Shelley, M. Singh, R. G. Spink, T. W. Stephens, Dorothy E. Stewart, Marjorie V. N. Sudds, B. A. Taylor, S. E. Theis, H. G. Timbres, Gladys M. Tullidge, E. M. Wijerama.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—*Medicine:* A. Fazary, K. C. S. Menon, K. L. Loh, A. J. Abeyesundere, R. Morton, M. N. Rozdon, J. B. D. Oliver, J. C. Blok, J. L. K. Lawson, P. Dass, F. Nafi. *Surgery:* A. Fazary, K. L. Loh, Y. M. E. Abeyesundere, W. E. S. Winne, J. Rosenberg. *Midwifery:* K. L. Loh, A. J. Abeyesundere, R. Morton, M. N. Rozdon, Y. M. E. Abeyesundere, J. Rosenberg, M. D. D. Jayawardana, P. Dass, G. Brown. *Medical Jurisprudence and Public Health:* F. R. Le Roux, Euphemia Cardwell, Y. H. Kwan, R. D. Johnston, B. Meyerowitz, A. M. Clement, F. Ludorf, S. McCallum, Helen H. Norris, W. M. Tso, F. A. Ebert, I. M. Sclare, D. Cameron, J. P. Collee, L. J. Goggins, M. Nathan, J. Osipowitz, H. F. Ezzet.

Out of 93 candidates entered, the following passed the Final Examination and have been granted the diploma of L.R.C.P.Ed. L.R.C.S.Ed., L.R.F.P.and S.Glas.

H. H. Jones, Esther A. Michael, J. McConnell, J. E. la Frenais, A. D. Wilson, C. Bellamy, J. B. Harris, A. R. Hunt, C. B. Watson, J. P. Walsh, R. L. Allan, H. C. Bodemer, J. L. W. Davies, Effie E. Keighley, W. Stevenson, M. P. Moss, M. K. Yong, W. E. M. Blamey, W. Graham, C. C. Teck, P. Kulasinghe, C. D. Amarasinha, I. D. Grant, E. T. Buck, J. A. S. de Sampayo, R. P. Carew-Smyth, R. S. Wilson, B. W. Advani.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—M. M. Barritt, G. T. W. Cashell, J. S. P. Coutts, G. R. Davies, H. Glynn, C. R. Graham, F. Mattar, G. W. Sturgess, W. H. Willis, G. K. Wilsker.

MEDICINE.—M. Asaad, M. M. Barritt, A. Buch, E. C. Dymond, J. E. R. Heppolette, S. R. G. Pimm, Z. Risk, A. L. Thomas, G. H. C. Walmsley.

FORENSIC MEDICINE.—E. C. Dymond, R. F. T. Finn, J. D. B Games, C. Seeley, I. J. Todd-Naylor.

MIDWIFERY.—M. M. Barritt, R. F. T. Finn, G. W. Hinchliffe, E. J. Jones, C. G. Muller, R. D. Newton, G. H. C. Walmsley.

The diploma of the Society has been granted to Messrs. A. Buch, G. T. W. Cashell, E. C. Dymond, J. D. B. Games, J. E. R. Heppolette, S. R. G. Pimm, Z. Risk, A. L. Thomas, G. K. Wilsker, and W. H. Willis.

The Services.

DEATHS IN THE SERVICES.

Surgeon Lieut.-Colonel James Anderson Laing, Madras Medical Service (ret.), died on May 18th, aged 84. He was born on September 11th, 1845, the son of David Laing, Esq., of Edinburgh, and was educated at the university in that city, where he graduated as M.B. and C.M. in 1869, after taking the L.R.C.P. in 1866. Entering the I.M.S. as an assistant surgeon on April 1st, 1870, he became Surgeon Lieutenant-Colonel after twenty years' service, and retired on September 9th, 1895.

Major Charles James Owen Young, M.C., R.A.M.C., died at Kuala Lumpur, Federated Malay States, on July 30th. He was the elder son of Colonel C. A. Young, C.B., C.M.G., and was educated at Trinity College, Dublin, where he graduated as M.B., B.Ch., and B.A.O. in 1916. He entered the Army at once, on July 1st, 1916, as a lieutenant in the Special Reserve, R.A.M.C., became temporary captain on December 1st, 1918, captain on January 1st, 1920, and major on July 1st, 1923. He served through the latter half of the war of 1914–18, was mentioned in dispatches in the *London Gazette* of December 30th, 1918, and was awarded the Military Cross.

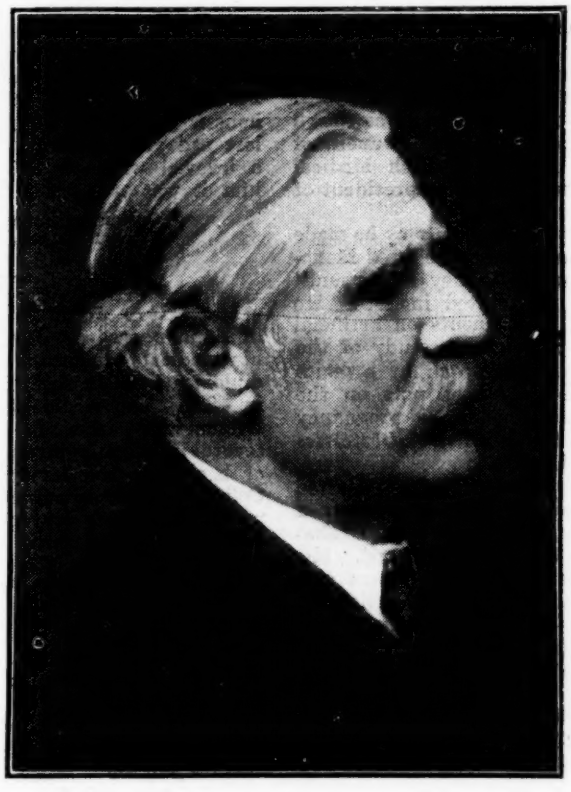
Obituary.

SIR FRANCIS HENRY CHAMPNEYS, Bt., M.D., F.R.C.P.,

Consulting Physician-Accoucheur, St. Bartholomew's Hospital.

Francis Henry Champneys, who died on the morning of July 30th, at his home, Littlemead, Nutley, Uckfield, Sussex, was born on March 25th, 1848, as the fourth son of the Very Rev. William Weldon Champneys, vicar of St. Mary's, Whitechapel, and Dean of Lichfield, whose father and grandfather had also been in Holy orders. Francis's elder brother Basil, a well-known architect, edited the *Memoirs and Correspondence of Coventry Patmore* (1900); a younger brother, Arthur Charles, who was a boy and later assistant master at Marlborough, was part author of a history of that public school (1893).

In 1860 Francis Champneys went to Winchester as a scholar, and was a pupil of S. B. Wesley, who was organist both to the cathedral and the school (1849–63); this must have influenced his musical life, for he had an organ in his house, during the last quarter of the last century directed a private choir which usually met in his London house, composed anthems, and wrote articles in the *Dictionary of Musical Terms* (1876), compiled by Sir John Stainer and A. W. Barrett. In his *History of St. Bartholomew's Hospital* Norman Moore said that "as a learned and admirable musician he benefited the school of St. Bartholomew's by encouraging the practice of music there." Following the example of his father, who had been a Fellow of the college, Francis Champneys went up in October, 1866, to Brasenose, Oxford, and in 1868 rowed bow in the college four in the Stewards' Cup at Henley. He obtained a first class in natural science, together with Seymour J. Sharkey (1847–1929), in the final schools, and the B.A. degree in 1870. He entered the medical school of St. Bartholomew's Hospital in 1871, and while working in the dissecting room there made his first professional contribution—an account of "A communication between the external iliac and portal veins" in an "aged" woman of 48 years (*Journ. Anat. and Physiol.*, 1872, v, 427). The Radcliffe Travelling Fellowship for three years was awarded to him in 1872, the year before that honour was gained by Sharkey, whose career and life so closely corresponded with his. He thus had the opportunity of working at Vienna, Leipzig, and Dresden, and at the last of these medical centres held a post in the lying-in hospital, thus very probably determining his future line of work.



After fulfilling the obligations of the travelling fellowship to spend eighteen months of its tenure abroad, he returned to London, and in 1875 obtained the diploma M.R.C.S., and graduated B.M.Oxon.; it was not, however, until 1888 that he proceeded D.M. At St. Bartholomew's he was appointed medical registrar in 1875, and in 1877 casualty physician at the same time as Robert Bridges, afterwards Poet Laureate. In 1876 he married Virginia, daughter of Sir John Warrender Dalrymple of North Berwick, and began the hard struggle in consulting practice which is easier to look back upon than to endure cheerfully, and which in his case led to such eminent success. In 1880 he was elected assistant obstetric physician to St. George's Hospital, and on the retirement of Robert Barnes in 1885 became obstetric physician; no appointment of an assistant obstetric physician was made during his term of office, so that he had entire charge of the department and teaching. In January, 1891, he accepted the flattering invitation to return to his old school, St. Bartholomew's, to take the place of J. Matthews Duncan (1826–1890) as physician-accoucheur and lecturer on midwifery and diseases of women and children, a post he held until his retirement in 1913 under the 65 years age limit, when he was elected consulting physician-accoucheur and a governor of the hospital. In this year he retired from practice, and gave up his house in Upper Brook Street to live in the country.

He was a most devoted pupil and follower of Matthews Duncan, who had been appointed to this post in 1877; and though this was considerably after he had become qualified, Champneys used to come down regularly to hear his mentor lecture at 9 a.m.; this went on well into the eighties, when he was on the staff at St. George's Hospital. He afterwards said that the renaissance of obstetrics and gynaecology began with the migration of Matthews Duncan from Edinburgh to London. No doubt he owed much to his hero, as did his friend John Williams (1840–1926), whose qualities were gracefully expressed in Champneys's dedication: *Johanni Williams medico insigni, sodali dilectissimo.* With high ideals these two leaders in their branch of medicine did much to improve its teaching and practice, and not least by elevating the standard they set up as examiners; Champneys, no doubt at some sacrifice, examined at the Universities of Oxford, Cambridge, and London, and for two periods at the Conjoint Board. They were closely associated in 1880 in taking over the care of the General Lying-in Hospital, then a hotbed of puerperal infection, and by establishing Listerian antiseptic midwifery for the first time in an English hospital obtained immediate results; it was therefore most appropriate that Champneys later should follow Lord Lister as president of this hospital. In 1911 he succeeded John Williams on the General Medical Council as a Crown nominee, and held office till 1926, being active on its Education Committee, and speaking with the authority of long experience. The value of his services as chairman of the Central Midwives Board from its foundation in 1902 can hardly be exaggerated.

In the life of medical London Champneys took a very active part. At the Royal College of Physicians, of which he became a Member in 1876 and a Fellow in 1882, he was a councillor, an examiner, and declined the honour of Harveian Orator; at the premier medical society in his earlier days (the Royal Medical and Chirurgical Society, which he joined in 1879) he played many parts as referee of papers, on the council, and on the library committee, and contributed eight papers on various subjects, including two on the development of mammary functions by the skin of lying-in women, the second in collaboration with A. A. Bowlby. When the Royal Society of Medicine arose out of the old Royal Medical and Chirurgical Society's union with seventeen previously separate societies, he shouldered, with his senior colleague at St. Bartholomew's, Sir William Church, the responsibilities, especially heavy and anxious at that juncture, of the honorary treasurership, which he held until 1912, when he naturally became president of the society. It may be noted that the only previous leaders in his branch of medicine who had

occupied the presidential chair of the Royal Medical and Chirurgical Society were Sir Charles Locock, first physician-accoucheur to Queen Victoria, in 1857, and in 1877 Charles West, who was honorary physician-accoucheur and lecturer on midwifery (1848–61) at St. Bartholomew's Hospital, and also eminent as founder, in 1852, of the Great Ormond Street Hospital for Sick Children. Now, after a shorter interval of seventeen years, Dr. T. W. Eden follows in his footsteps. As recently as July 15th last Champneys was elected an honorary Fellow of the society he had served so long and faithfully, but did not live to be admitted or to receive the diploma. At the old Obstetrical Society of London, which became a Section of the Royal Society of Medicine, he filled many offices, and was president so long ago as 1895–96, when in his address he gave an account of the midwives question, in which he took a great and active interest for many years, playing a leading part in formulating the rules for the Central Midwives Board, and as it chairman since its institution becoming the authority on the subject, as is shown, among other ways, by his address in 1914 on the working of the Midwives Act (England), 1902. Many of his contributions are to be found in the Obstetrical Society's *Transactions*—for example, his paper on the mechanism of the third stage of labour (1888). In 1890 he delivered the Harveian Lectures on painful menstruation, which were published in the following year. His deep interest in combating venereal disease was shown by his support of the British Social Hygiene Council, of which he was a vice-president. At the British Medical Association's meeting at Oxford in 1904 he was president of the Section of Obstetrics and Gynaecology.

Among his professional publications mention may be made of a volume in the New Sydenham Society's Selected Monographs—Landau's work on "Movable kidney in women," which he translated, annotated, and edited in 1884. He published in 1887 an account of experiments on artificial respiration in stillborn children, and later a study of the natural history of tubal gestation, illustrated by a series of seventy-five original cases (1902), and a note on the history of the literature of the toxaemia of pregnancy (1908), the two last appearing in the *Journal of Obstetrics and Gynaecology of the British Empire*.

In June, 1910, he was created a baronet of the United Kingdom, the same list containing the peerage conferred on Sir Balthazar Walter Foster, who had been Parliamentary Secretary of the Local Government Board. His outstanding position in the medical profession was also shown by his election as president of the Section of Obstetrics and Gynaecology at the Seventeenth International Congress of Medicine, held in London in August, 1913. At the first meeting of the council of the College of Obstetricians and Gynaecologists, in September, 1929, he was appointed vice-patron of the college "in recognition of his services to obstetrics and gynaecology, and to the College during the process of formation." He was one of the original signatories of the college and a member of its first council; he regularly attended its meetings, and his judgement and sound common sense proved most valuable.

Champneys advanced the branch of medicine he adorned rather by wise leading and tactful guidance than by initiating any great discovery, and he exerted an influence for reform and wholesome advance on sound scientific lines. He had lived through the transitional period during which its followers, formerly physicians in name, became surgeons both in name and in deeds. With a personal charm of manner and conversation, he had troops of friends, was a member of several social medical clubs, had wide interests outside his profession, and was a truly religious man. His only surviving son, who succeeds to the title, Weldon Dalrymple-Champneys, late Grenadier Guards, was at Oriel College, Oxford, is a doctor of medicine, and a medical officer in the Ministry of Health.

The funeral took place at Hampstead Cemetery on August 2nd, preceded by a requiem and the first part of the service at St. Alban's, Holborn, with which he had long been associated. A memorial service was held in the Church of St. Bartholomew-the-Less, within the precincts of the hospital, at 9.15 a.m. on the same day.

H. D. R.

Sir D'ARCY POWER writes:

My earliest recollections of Dr. Champneys go back to a time when he was canvassing for the appointment of obstetric physician to St. George's Hospital, where my father had been ophthalmic surgeon and had many friends among the staff. Champneys often stayed to dinner, and I recall him as a good-looking man, full of energy, talkative, and bubbling over with laughter. He told us of Wagner's genius and of the relative beauties of his different operas, all of which he himself attended regularly, though seats were expensive, and money was not too abundant even for one who had been a Radcliffe Travelling Fellow at Oxford. We learned also, incidentally, that it took just forty-nine minutes to walk from our house in Great Cumberland Place to Hampstead, where Miss Dalrymple, his future wife, was then living, and that he did the journey daily. A few years later, when I attended the lectures of Dr. Matthews Duncan—that great teacher of ethics and midwifery—Champneys was always present, notebook in hand, although he was obstetric physician at St. George's, and Dr. Matthews Duncan lectured "on every lawful day—Saturdays included—at 9 a.m." Later still came the distressing incident when Dr. Clement Godson was superseded; Dr. Champneys was then elected physician-accoucheur to St. Bartholomew's Hospital in place of his great master. From that time his position was assured; he went from honour to honour, happy in his circumstances until those last sad years when, bereft of a son in the war and of a beloved wife, he fell into the sadness of old age. Of him it was true, as Virgil sings, that—

> "Optima quaeque dies miseris mortalibus aevi
> Prima fugit, subeunt morbi tristisque senectus."

Dr. DAVID JOHN BROWNE, who died at his residence in Londonderry on June 19th, at the age of 84, received his medical education in Dublin, where he obtained the diplomas L.M. in 1868, L.R.C.S.I. in 1869, and M.R.C.P.I. in 1880. The whole of his medical career was spent in Londonderry, where he built up a large practice. He held several public appointments, being consulting medical officer of health to the Londonderry Union, physician to Foyle College, and medical referee to various insurance companies. He was for some time a member of the Derry Corporation, and until his death he was a director of the City of Derry Building Society, of which he had been president for the last fourteen years. He was a member of the British Medical Association. A colleague writes: Of a genial and kindly nature, Dr. Browne was a practitioner of the old school. He was highly esteemed by everyone with whom he came into contact. His bright, cheery manner, coupled with a fine sense of humour, inspired many of his patients in the critical stages of their illness, and he was regarded as a family friend as well as medical adviser. Some years ago, when he retired from the post of medical officer of the Derry Workhouse and Waterside Infirmary, which he had held for over forty years, the chairman and members of the board of guardians paid the highest tribute to the very efficient manner in which he had discharged his duties.

Dr. CHARLES BERKELEY GERVIS, who died on June 30th, was born at Hampstead in 1875; he was the fourth son of the late Dr. F. H. Gervis, who practised for many years in Fellowes Road. Charles Gervis was educated at St. Paul's School and University College Hospital, and studied also in Brussels and Vienna. He obtained the diplomas of M.R.C.S.Eng., L.R.C.P.Lond. in 1897, and graduated M.D.Brux. in 1898. After serving as assistant medical officer at Colney Hatch Asylum he went to Seaford in 1898; he subsequently held the appointments of medical officer to the Post Office and public vaccinator of the Seaford District of the Eastbourne Union. He took great interest in local affairs, being a member of the Seaford Urban District Council for sixteen years and chairman of that body for three years. He was also chairman of the Seaford Nursing Association, the committee of the Sussex County Hospital, and the Boy Scouts local association. He founded the Seaford Masonic Lodge, and was for many

years honorary secretary of the Union Club. During the war he served with the R.A.M.C. in France and South Africa. Dr. Gervis was a member of the Brighton Division of the British Medical Association. He contributed a paper on eclampsia to the *British Medical Journal* in 1913.

DR. DAVID HART-SCOTT, who died on June 28th, at the age of 72, received his medical education at the University of Edinburgh, and obtained the diplomas L.R.C.P., L.R.C.S., and L.M.Ed., and L.R.F.P.S.Glas. in 1894. After holding the post of assistant house-surgeon at the Dumfries and Galloway Royal Infirmary, he engaged in general practice in Manchester and afterwards at Paddock Wood, Kent, acting as district medical officer for the Capel District of the Tunbridge Union. He later practised at Sampford Peverill, Devon, and subsequently at Bolton-le-Sands, finally settling down at Parson Drove, near Wisbech, in 1919. He took an active interest in the affairs of the Isle of Ely Division of the British Medical Association, and became a member of the Executive Committee of that Division in 1919. He was elected vice-chairman of the Division in 1928, and would have held the post of chairman the following year but for his illness, which ultimately proved fatal. In addition to his interest in the affairs of the Division he also took an active share in those of the Isle of Ely Panel and Local Medical Committees, on both of which committees he served from 1919 onwards. A colleague writes: Dr. Hart-Scott had the attributes in no small degree which go to the make-up of an ideal type of man—the combination of the Christian gentleman and the doctor. He never sought popularity, but with such a character he was destined not to escape it. He was held in high esteem among his colleagues, and was truly beloved by his patients, on whose behalf he laboured unsparingly. He will always be remembered for his kindly disposition, his sincere desire to relieve suffering, and his warm, human sympathy.

Medico-Legal.

MEDICAL FEES AT INQUESTS.

CLAIM AGAINST A CORONER.

AT Redhill County Court, on July 16th, His Honour Judge Hill-Kelly gave a reserved judgement in an action which had been brought by the Medical Defence Union, acting on behalf of Dr. David Low Greig of Caterham, against the coroner for East Surrey, Mr. F. J. Nightingale. Dr. Greig claimed £22 1s. for examining seven bodies and giving evidence on two occasions as to cause of death in the case of the victims of the Croydon air disaster of November, 1929. The Medical Defence Union contended that the doctor was entitled to a fee in the case of each body examined, whereas it was contended by the coroner that as the cause of all these deaths was dealt with by one inquiry Dr. Greig was only entitled to two fees of 1½ guineas, as if one inquest had been held on one body on two occasions.

At the hearing, which took place on June 20th, Mr. H. C. Dickens (instructed by Messrs. Hempson, solicitors) represented Dr. Greig and the Medical Defence Union, and Mr. Milner Holland represented the coroner and the Surrey County Council, his employing authority.

Mr. Dickens explained that this was a friendly dispute, as a result of which it was hoped to get an interpretation of Section 23 of the Coroners Amendment Act, 1926. The section reads as follows:

"The fees payable to a legally qualified medical practitioner who has made any post-mortem examination by the direction or at the request of a coroner, or who has attended an inquest in obedience to a summons of a coroner under the Coroners Act, 1887, shall (save as in this Act otherwise expressly provided) be as follows—that is to say:

"(*a*) For attending to give evidence at any inquest whereat no post-mortem examination has been made by the practitioner, 1½ guineas for each day of which he is required to attend; and

"(*b*) for making a post-mortem examination of the body of the deceased and reporting the result thereof to the coroner without attending to give evidence at an inquest, 2 guineas; and

"(*c*) for making a post-mortem examination of the body of the deceased (including the making of a report, if any, of the result thereof to the coroner) and for attending to give evidence at an inquest on the body, 3 guineas for the first day and 1½ guineas for each subsequent day on which the practitioner is required to attend:

"Provided that no fee or remuneration shall be paid to a medical practitioner for the purpose of a post-mortem examination instituted without the previous direction or request of the coroner."

On November 7th (Mr. Dickens continued) Dr. Greig made an examination of the bodies of seven persons who were the victims of an air disaster, and on the following day attended an inquiry into the causes of death. The inquiry was adjourned, and Dr. Greig attended again at the resumed hearing. His submission was that he was entitled to seven 1½ guinea fees in respect to his services on the first day and a similar amount in respect to his services on the second day.

The coroner, in evidence, said that he issued only one coroner's warrant, empanelled only one jury, and returned one verdict. He agreed that he viewed seven bodies, that there were seven inquisitions, seven death certificates, and seven burial orders; also that there was a possibility that the cause of death might have been different in each case, though in fact it was not.

Mr. Holland, for the coroner, submitted that there was no obligation on the part of a doctor to examine the bodies when requested to do so by the coroner's officer. The only thing which could be enforced was attendance at the inquest. Asked by the judge whether he was putting this forward for the defence on behalf of such a responsible body as the Surrey County Council, he said that that in his submission was the law, to which the judge replied, "How is the coroner to get a medical man to give evidence as to the cause of death if he has no power?" Mr. Dickens also pointed out that if the coroner had no power over a medical man, the medical man could go into the witness-box at the inquest and say that he could give no evidence as he had not seen the body. At the same time, he would be entitled to his fee of 1½ guineas for attendance.

Judgement for the Doctor.

In giving judgement, His Honour said that Section 23 of the Coroners Amendment Act indicated the manner in which a practitioner was to be remunerated in three different sets of circumstances—namely (*a*), (*b*), and (*c*). It was the first set which fell to be considered in this case—(attendance to give evidence without having made a post-mortem examination)—but in order to construe the section it was proper to have regard to the whole of it. Clause (*a*) might be ambiguous when read alone; it seemed clear that Clause (*b*) gave to the practitioner a right to a fee of 2 guineas for each post-mortem examination made by him at the coroner's direction; while Clause (*c*) provided that the practitioner should be entitled to be paid 3 guineas for making a post-mortem examination of the body and for attending to give evidence at the inquest. If the defendant's contention as to the construction of the section was correct, how was the remuneration of the practitioner to be ascertained in the case coming under Clause (*c*)? Suppose an inquiry into the deaths of two persons killed at the same time and by the same cause, and that the practitioner had, by the coroner's direction, made post-mortem examinations of the two bodies and had attended the inquiry to give evidence with regard to both bodies, how, on the defendant's contention, was he to be remunerated? The circumstances excluded the operation of Clauses (*a*) and (*b*), and there was nothing in Clause (*c*) which enabled the fee of 3 guineas to be split up. On the other hand, if the applicant's contention was correct, there was no difficulty: the practitioner in that case was entitled to be paid 3 guineas in respect of each post-mortem examination he had made where he had also attended to give evidence of the cause of death. Therefore it would follow from the words in Clause (*c*), "attending to give evidence at an inquest on the body," that an inquiry touching the death of one person and no more was intended, and if the word was used in that sense in Clause (*c*) it followed that it was used in the same sense in Clause (*a*). That, the judge thought, was the true view of the matter. Although it was common practice for coroners to hold a single inquiry into the deaths of two or more persons, there were really in the law as many inquests as there were dead bodies touching whose deaths the inquiry was held. The language of the Coroners Act, 1887, and the Coroners Amendment Act, 1926, throughout contemplated an inquiry touching the death of a single person, save in Section 17 of the Act of 1926, and there the word used was "inquests" in the plural, whereby, the judge thought, the statute clearly recognized that a separate inquest was held upon each body.

The result of this interpretation of Section 23 was that the applicant, Dr. Greig, was entitled to recover from the defendant the amount he claimed. It might appear a strange result that a practitioner should be entitled to be paid so large a sum in respect of two attendances occupying not more than three hours altogether, but the case was unusual when a coroner inquired into the deaths of seven persons killed at the same time, and a strange result in an unusual case ought not to affect the interpretation of the Act.

The judge added, "Since the rate of remuneration of the medical practitioner is governed by the words of the Act of Parliament no question can arise as to its reasonableness, but the plaintiff naturally referred in his evidence to the fact that, at the defendant's request, he attended on the day before the inquiry at the Caterham mortuary and examined the six bodies lying there [the seventh person died at the house of the plaintiff], and since if he had not attended at the mortuary and made that examination he could have given no evidence for the guidance of the coroner and the jury, it was with considerable surprise that I heard counsel for the defendant repeatedly urging that the plaintiff was under no obligation to comply with the request, and could have wholly disregarded it without any breach of duty."

Judgement was given for the plaintiff, but His Honour agreed to a stay of execution for twenty-one days.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

ON August 1st, before Parliament was prorogued till October 28th, the Royal Assent was given to the Workmen's Compensation (Silicosis and Asbestosis) Act, the Road Traffic Act, the Criminal Appeal (Northern Ireland) Act, the Education (Scotland) Act, the Housing Act, the Housing (Scotland) Act, and to other Acts. The King's Speech proroguing Parliament recalled that at an earlier date the Royal Assent had been given to the Mental Treatment Act.

On the same day Mr. Snowden read to the House of Commons a statement setting out the Government's agricultural policy. Dr. Fremantle pointed out that this contained no reference to a subject of great importance—namely, the training of veterinary surgeons.

National Health Insurance.

Mr. GREENWOOD informed Sir N. Grattan-Doyle, on July 31st, that he had seen the report of the Council of the British Medical Association recommending the extension of the benefits of national health insurance to dependants of all persons insured thereunder. He was not then able to make a statement concerning any action.

Replying to Dr. Vernon Davies, Mr. GREENWOOD said he knew Section 4 of the National Health Insurance Act, 1928, precluding Insurance Committees from making grants unless the Minister was satisfied that they were of an eleemosynary character, would abolish next December the laboratory diagnosis service of the Lancashire Insurance Committee. Dr. DAVIES stated that since 1926 this service had provided out of local funds a free laboratory diagnostic service for 800,000 insured persons in Lancashire at a cost of less than one farthing per head. Mr. GREENWOOD remarked that alternative means of securing services of this character had been suggested to representatives of the committee, but he could not undertake to propose an amendment of the law deleting the word "eleemosynary" from Section 4 of the Act of 1928.

Replying to Mr. Daggar, Mr. GREENWOOD gave the approximate number of weeks for which sickness and disablement benefits were paid under the National Health Insurance Acts.

Years.	Million weeks.	Years	Million weeks.
1921	19	1926	28¼
1922	19½	1927	30½
1923	20½	1928	26⅞
1924	23¼	1929	29½
1925	25		

In reply to Mr. Gould, on the same day, Mr. GREENWOOD said he had received a report from the Somerset Health Insurance Committee in which it was stated that certain chemists had been dispensing in a very lax way under the National Health Insurance Act, and that in one case a deficiency of 69 per cent. of the drugs as prescribed by the medical practitioner was dispensed to the patient. Any failure to comply with the terms of service applicable to insurance chemists would be dealt with in accordance with the Medical Benefit Regulations. Asked by Mr. GOULD whether he would not take action in order to dispel the bad impression the report had left on the minds of patients in regard to the quality of dispensing, Mr. GREENWOOD said that there was no delay on his part. A definite procedure had to be followed under the regulations in regard to intervention.

Mental Treatment.

Mr. GREENWOOD stated, in reply to Mr. Richardson on July 31st, that in the course of considering the recommendations of the Royal Commission on Lunacy notes were prepared on the clauses that would be required to effect an assimilation of the procedure for the certification of rate-aided and private mental patients. No steps had been taken towards drafting a bill, as it was impracticable at present to undertake further lunacy legislation. When asked to state his attitude towards the recommendation of the Standing Committee on the Mental Treatment Bill to give separate accommodation to voluntary boarders, he reminded Mr. Richardson that the Mental Treatment Act had only received the Royal Assent on July 10th and did not come into operation until January, 1931. The Board of Control had already conferred with local authorities in regard to some of the more important provisions of the Act. Until local authorities had an opportunity of considering and determining the steps to be taken in their areas when the Act came into operation it was impossible to say how many hospitals which had hitherto been Poor Law infirmaries would be utilized for this purpose, or how many hospitals had started out-patient clinics for mental cases.

On August 1st Mr. GREENWOOD announced that he had given provisional approval to a proposal made jointly by the East Riding County Council and York City Council to buy Brandesburton Hall and 98 acres of land for "mental deficiency purposes." The estate had been inspected by the Board of Control, which was satisfied that it was suitable. His own inquiries did not support the allegation that the site was unsuitable and too low.

Physical Condition of Army Recruits.

In the House of Commons, on July 30th, the Army Estimates again came under discussion, and a statement was made by Mr. SHAW. He said that the Army needed about 30,000 recruits a year, of whom 17,000 were required for the infantry. Something like 61 per cent. of those who offered themselves for the Army failed to reach the very moderate standard of physical efficiency which was necessary. During the nine months of the present recruiting year 19,213 recruits were accepted. The physical condition of those now offering themselves for service was probably due to the war. In addition, the diminution of births during the war years limited the number of men of military age. In 1928, 64 men out of every 100 were rejected, and in 1929, 61. Nearly all the rejections were on account of physical defects. The height required for the infantry of the line was now 5 ft. 2 in. To him these figures were dreadful. The medical side of the Army was understaffed. From information given him by some of the distinguished men in the medical profession, the reason was that the terms on this side of the service were not good enough.

Sir LAMING WORTHINGTON-EVANS said that in past years 65 or 66 per cent. of Army recruits had been rejected. He did not see how war deterioration could yet affect recruiting. War children would at most be only 16 years old.

Mr. SHAW said he had referred to the children who were 3 or 4 years old when the war broke out.

Dr. VERNON DAVIES said the recruiting statistics showed there were in this country a very large number of young men who could not be described as physically fit. The improvement on young men after admission to the Army should be taken into account. Mr. Shaw had recently stated that there was a present shortage of 140 medical officers in the Army. Mr. Shaw had put his finger on the cause, which was money. The medical man was worthy of his hire, and more and more of them were attracted each year into the public services—the health services, tuberculosis services, venereal disease services, and all the others, which offered great inducements. The best men took these appointments and the Army suffered. If the Secretary of War offered sufficiently good terms he could get them into the Army. There was another method. Would it not be possible to arrange that any medical man who had been in one of the Defence Services should have a preferential claim to any Government medical service, and, later on, to those under municipalities? The same trouble was found in the Navy and the Air Force, but if the three departments would persuade the Government to adopt this preferential system the difficulty would be overcome.

The House then agreed to the Army Estimates.

A previous discussion on the Army Estimates and on the shortage of medical officers occupied the House of Commons on March 24th, and was reported in the *British Medical Journal* of April 12th.

Medicine Stamp Duty.—In an answer to Mr. Leif Jones, on August 1st, Mr. SNOWDEN said the net amount of Medicine Stamp Duty received in the year ended March 31st, 1930, was approximately £1,234,200. There was a statutory exemption from the duty in favour of "Known, admitted and approved" remedies—when sold by duly qualified doctors, chemists, or druggists—in which no proprietary right was claimed. Claims for such exemption were admitted provided that a definite and complete statement of the actual ingredients (that is, the full formula with proportions) and a statement that no proprietary rights were claimed in the preparation of the medicine were printed in a legible and conspicuous manner on all labels, cartons, etc. Following the decision of the courts in the case of Farmer *v.* Glyn Jones in 1903, exemption had not been refused on the ground that known, admitted, and approved remedies had been recommended for the prevention or cure of illness. The cost of this exemption could not be stated.

Smuggling of Drugs.—Mr. CLYNES, in reply to Mr. Mander on July 31st, stated that there had been a number of attempts to smuggle drugs into Egypt on boats of the Khedivial line, and on those of other lines sailing between Egypt and European ports. The Central Narcotics Intelligence Bureau in Cairo had called the attention of the company to these cases, and the company had instructed their agents to co-operate in every possible way with the Bureau to prevent use being made of their ships for such a purpose.

Tuberculosis.—Mr. ALEXANDER informed Dr. Vernon Davies, on July 30th, that during the previous six months 70 per cent. of those invalided from the Navy for tuberculosis had been granted attributable pensions. This compared with 68 per cent. of those invalided for this reason during 1929. On the same day Dr. Davies was told by Mr. SHAW that the number of such pensions granted to those who had been invalided from the Army during 1929 on this account was about 2 per cent. less than the number of the previous year.

Housing.—During the period July 1st, 1928, to June 30th, 1929, 51,282 houses were built in England and Wales under the Housing Act, 1924; in the following year the number for the same period was 54,159.

Vagrancy.—Mr. GREENWOOD stated last week that the report of the Commission on Vagrancy would shortly be available. He proposes to address a circular letter regarding it to local authorities.

London Refuse.—In reply to Dr. Fremantle, on July 31st, Mr. GREENWOOD said the report of the Departmental Committee on the Disposal of London Refuse was being considered by the Standing Joint Committee of the Metropolitan Borough Councils. It would not be practicable for this committee to furnish its views during the parliamentary recess.

Anthracosis in Mines.—Mr. PARKINSON, in reply to Mr. Jenkins on July 30th, said the investigation of anthracosis in mines was within the scope and under the close attention of the Committee on Industrial Pulmonary Disease recently set up by the Medical Research Council. The results of the investigations would be published in due course.

Infant Mortality in Malta.—Dr. SHIELS, replying to the Duchess of Atholl on July 28th, said that during 1923 there were 1,953 deaths, or 260.81 per 1,000 births, of children under 1 year of age in Malta. In 1927 there were 2,250 deaths, or 301.32 per 1,000 births, and in 1928, 1,963 deaths, or 267.91 per 1,000 births.

Medical News.

VISITS to the Tower of London will be arranged on August 13th, 20th, and September 3rd, in aid of King Edward's Hospital Fund for London, the guide being Mr. Walter Bell, the well-known London historian. Applications for tickets (price 10s. for each visit) should be made to the secretary of the Fund, 7, Walbrook, E.C.4.

THE winter session of lectures at the Central London Throat, Nose, and Ear Hospital, Gray's Inn Road, W.C.1, will commence on Friday, September 5th, at 4 p.m. The official opening lecture of the session will be given on October 10th, at 4 p.m., by Dr. Dan McKenzie, on the limitations of surgery in oto-laryngology.

THE Fellowship of Medicine announces that there are still three weeks remaining of the special course in urology consisting of clinical and cystoscopic demonstrations on male and female patients at All Saints' Hospital, Vauxhall Bridge Road, S.W.1; proportionate fees are payable. From August 11th to 16th an all-day course will be held at the Brompton Hospital. A course taking up the whole of the day will be held at the Queen's Hospital for Children from September 1st to 13th; the instruction will consist of the showing of cases rather than set demonstrations or lectures. There will be a revision course at the Westminster Hospital from September 15th to 27th, when the various departments of the hospital will be utilized for providing instruction in all branches of medicine and surgery. Post-graduates are invited to apply for particulars of the work arranged for the winter months and also for the 1931 list of special courses; full information is obtainable from the secretary of the Fellowship, 1, Wimpole Street, W.1.

THE following international post-graduate courses have been arranged in Berlin: (1) Practical laboratory course, September 29th to October 4th, fee 40 marks; (2) internal medicine, with special reference to its clinical aspects, fee 75 marks; (3) paediatrics, September 29th to October 11th, fee 100 marks; (4) ophthalmology, October 1st to 11th, fee 80 marks; and (5) occupational diseases, October 27th to November 4th, fee 60 marks.

THE autumn session of training courses for examinations for sanitary inspectors, meat and food inspectors, smoke inspectors, associateship (general hygiene and sanitation), associateship (food hygiene), and sanitary science will commence at the Royal Sanitary Institute on Monday, September 29th. Syllabuses of the lectures and of the examinations are obtainable from the secretary, 90, Buckingham Palace Road, London, S.W.1.

THE Medical Society of Individual Psychology, which has met hitherto at 55, Gower Street, London, will in future meet at the rooms of the Medical Society of London, Chandos Street, W.1. The primary object of the society is to bring together those interested in the medical aspects of individual psychology and to give instruction as regards its theory and practice. Meetings are held for the reading of papers and the holding of discussions. A course of systematic lectures is proposed for the early part of next year. The first meeting of the society during the coming session will be held on Thursday, October 9th, when the chairman, Dr. O. H. Woodcock, will give an address on the development of individual psychology in the twentieth century. Further information as regards membership of the society and other meetings may be obtained from the secretary, Dr. T. E. Lawson, 35a, Welbeck Street, W.1.

A MEETING of the National Radium Trust was held on July 29th, under the chairmanship of Lord Parmoor, when consideration was given to the report to be submitted in the autumn to the Treasury for presentation to Parliament.

AT the meeting of the council of the Metropolitan Hospital Sunday Fund held at the Mansion House on July 30th it was announced that the sum of £73,000 had been subscribed this year, being £5,000 less than the figure for the previous year. It was stated that the money had been distributed among 237 hospitals, institutions, dispensaries, and nursing associations; 7½ per cent. had been appropriated for the purchase of surgical appliances, and 2½ per cent. for district nursing associations.

THE Medical Research Council has appointed Major A. G. Church, M.P., Dr. F. E. Fremantle, M.P., and Sir John H. Parsons, F.R.S., to be members of its Industrial Health Research Board.

IN view of the passing of the Road Traffic Act, 1930, the Automobile Association has prepared a booklet giving a digest of the main features of the law which affect the owners of motor cars and motor cycles. The booklet is obtainable by post-card application to the secretary of the Automobile Association, Fanum House, New Coventry Street, W.1.

MESSRS. BUTTERWORTH AND CO., the publishers of Patel's *Infectious Diseases and Other Fevers in India*, have sent us a copy of a slip, which is being inserted in all copies of the book sold, to the effect that certain passages (which were noted in the *Journal*, January 25th, p. 156) had inadvertently been taken without acknowledgement from the first edition of Dr. J. D. Rolleston's book on *Acute Infectious Diseases*.

A SOUVENIR booklet has been issued by the Church of England Zenana Missionary Society describing its religious, educational, and medical work in India and China since it was founded as a separate organization fifty years ago. In that period the society has organized twenty-three hospitals and twenty-seven dispensaries to alleviate suffering among women and children, and to provide training for native nurses and midwives. It also maintains several schools for the deaf and blind in both countries. Copies of the booklet, which contains a number of striking tributes, are obtainable at the offices of the society, 19 to 21, Southampton St., W.1, price 1s.

ST. BARTHOLOMEW'S HOSPITAL old students' annual dinner will be held on Wednesday, October 1st, at 7.30 p.m., in the great hall of the hospital, with Mr. L. B. Rawling in the chair. The honorary secretary is Sir Charles Gordon-Watson, 82, Harley Street, W.1.

IN order to make the results of the researches carried out at the National Physical Laboratory more readily available to the public, the annual report of the Laboratory for 1929 (reviewed in the *British Medical Journal* of June 21st) has been published in a number of separate pamphlets as well as in volume form. These pamphlets, which include the reports of the physics, electricity, metrology, engineering, aerodynamics, and metallurgy departments, are obtainable at H.M. Stationery Office.

THE fourth Congress of the World League for Sexual Reform will be held in Vienna from September 13th to 20th, when papers will be read on housing and sexual reform, birth control, the rights of the child, and the history of sexual morality.

AS a memorial to Richard Cadbury and George Cadbury, who created Bournville fifty years ago, the firm of Cadbury Bros., Ltd., have presented Frankley Beeches, near Birmingham, to the National Trust to be preserved free from buildings.

HARROW HOSPITAL has received an offer from the Kodak Company to build and equip an *x*-ray room at a cost not exceeding £1,000.

DR. ROBERT S. BRIDGES, the Poet Laureate from 1913 to 1930, who died on April 21st, aged 85 years, has left estate of the gross value of £6,928, with net personalty £6,771.

THE Hungarian Ministry of Social Welfare has offered a prize of 2,000 Swiss francs for the best original work on the causes of trachoma. The work, which may be written in English, German, French, Italian, or Hungarian, should be sent to the Ophthalmological Clinic of the Hungarian University, Budapest, before June 30th, 1931.

PROFESSOR ALBERT DÖDERLEIN, director of the gynaecological clinic at Munich, has been elected honorary president of the Munich Gynaecological Society on the occasion of his seventieth birthday.

THE following appointments have recently been made in foreign faculties of medicine: Dr. Cuneo, hitherto professor of medico-chirurgical anatomy and operative technique, professor of clinical surgery in the Paris Faculty; Dr. R. Tesson, professor of surgical pathology in the medical school of Angers, in succession to the late Professor Brin; and Dr. Schreus, professor of dermatology at Düsseldorf.

GEHEIMRAT DR. PAUL KRAUSE, director of the medical clinic at Münster, has been elected Rector of Münster University for 1930-31, and the well-known dermatologist Professor Ladislaus Nekam has been elected Rector of Budapest University.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

SOUR MILK.

"E. W. D." asks for advice about the conducting of the sour milk treatment in the case of persons unable to afford the expense and time involved in daily use of the various commercial preparations on the market. He believes that in the Balkans, whence the treatment came, the souring process is kept up by simply transferring a small portion from milk already sour to a fresh bowl, and that there are people who adopt this method in Britain. He would be glad to have particulars how this is done, and of the best preparation with which to start the process.

UNUSUAL REACTIONS TO ULTRA-VIOLET RAYS.

DR. P. CLENNELL FENWICK (Christchurch, New Zealand) writes: Has anyone using the ultra-violet rays had experience of unusual reactions following the use of this ray? A dark-haired woman, aged 38, with five ulcers on the legs, was given local treatment with the ultra-violet rays, and also the usual "bath" over the whole body, the face being protected. The ulcers began to heal well, but the skin over the body reacted quickly, and after the seventh "bath" treatment was discontinued for several days. The whole body showed very marked dermatitis, with a number of crusting areas on the breasts; moreover, the face, which had not been subjected to the rays, peeled, as if the patient had been badly sunburned. The reaction was so violent that I was much concerned. The skin quickly improved, and the crusted areas healed well, but I do not understand why the face, which was never exposed to the rays, should show so marked a reaction.

TREATMENT OF OBESITY.

"A. H." writes: I know two medical men who speak highly of a cure of obesity by high rectal enemata and purely vegetable diet. I have not been able to find any literature on the subject. Is there any article or book available?

BROMIDROSIS.

"A. V. C.," replying to the inquiry of "R. B. C." in the *Journal* of July 12th (p. 86) with reference to profuse and offensive perspiration, writes: If the boy will use a nail-brush and rub soap into the soles of the feet for a few days, and afterwards soap the feet daily, especially the heels and the ball of the foot, nothing in the way of chemicals is necessary. These boys are not taught to soap the soles of the feet when bathing or washing the feet. Of course, well-ventilated shoes are also desirable, such as canvas shoes in hot weather.

DIET IN RHEUMATISM.

"T. L." writes: In reply to Dr. Grant's inquiry in the *Journal* of July 19th (p. 128), I should like to suggest a trial of the following diet for rheumatism. All drinks should be unsweetened; additional drinks—plain water, or water into which a little lemon juice has been squeezed—should be taken between meals. Cocoa, tea, and coffee are very beneficial without milk or sugar, though a little milk can be added if necessary. Grape fruit or lemon juice, unsweetened, can be taken before breakfast. If meat cannot be left out of the diet, its quantity must be definitely reduced. Sweet puddings of the starchy variety and stewed sweetened fruit are definitely injurious; these should be replaced by fresh fruits and nuts. Potatoes are best baked and served with butter. Salads can be freely indulged in. The evening meal should be chiefly protein, starchy foods being replaced by fats as much as possible. Fish, eggs, butter, and cheese at night are better than pastries, etc. Germ bread or rye vita biscuits will supply any deficiency which may be felt in the reducing of the bulk of the diet.

LETTERS, NOTES, ETC.

IODINE IN THE PREVENTION OF MISCARRIAGE.

DR. J. WINIFRED WARD (Chanda, India) writes: In view of the remarks of Professor Beckwith Whitehouse in the *Journal* of December 14th, 1929 (p. 1095), as to the value of iodine in pregnancy, and of the cases of habitual miscarriage successfully treated by iodide and iron recorded by J. Novak (see *Epitome*, June 5th, 1926, para. 576), the following two cases may be of interest. Both were referred to me from the local infant welfare centre, and I have sent an account of them to the Central Provinces and Berar Red Cross Infant Welfare Committee. The first patient was a healthy low-caste Indian woman with a history of two normal pregnancies, followed by five pregnancies in which foetal movements stopped at the beginning of the ninth month and stillbirths took place. She came for treatment in the seventh month, as she thought foetal movements had ceased. She received syrup ferri iodidi, and gave birth to a full-time living male infant. In the second instance a high-caste Indian woman was brought by her husband in the seventh month of pregnancy, as she thought the foetal movements had much diminished and felt a sensation of weight in the lower abdomen. She had had two stillbirths at the seventh month, following which her Wassermann reaction and that of her husband were tested and found to be negative. The husband stated: "The pathologist gave my wife some injections afterwards to make sure." She was treated by syrup of ferrous iodide, and, since she stated that this made her vomit, by powders of sodium bicarbonate and magnesium carbonate. She gave birth to a healthy full-time male infant.

"UKUSIZA ABA LIMELE."

IN the Witwatersrand gold mines the native appears to have become deeply interested in first aid, so that there are now over 22,000 natives possessed of first-aid certificates and badges. Dr. H. T. H. Butt, senior medical officer of the Randfontein Estates Gold Mining Company, finding theoretical tuition unnecessary for the uneducated Bantu, has hit upon the plan of photographing natives in the process of applying splints and bandages, in resuscitating the apparently dead, and in carrying patients or placing them on stretchers. The photographs have been collected in a little work entitled *Ukusiza Aba Limele*; the name of each injury is given in Zulu, Xosa, Sesuto, and English, and an occasional slogan in the same four languages is thrown in, for the purpose, presumably, of encouraging any Bantu who can read to join the movement. The booklet is published by the Rand Mutual Assurance Company; it has the blessing of the South African Red Cross Society, and Dr. Butt thinks that it may be of interest to Europeans. This should be so, if only for the photographs of fine, muscular natives seriously enjoying the processes of demonstration. But where did Dr. Butt find the horrible word "annexure" for what is commonly called an appendix? His booklet is published by the Prevention of Accidents Committee of the Rand Mutual Assurance Co., Ltd.

RETENTION OF URINE FROM LARGE VAGINAL CLOT.

DR. C. J. HILL AITKEN (Kilnhurst, near Rotherham) writes: A multipara had post-partum haemorrhage. I made her lie flat on her back and kept her so. The oozing, which continued, I disregarded, as from her oedematous condition I judged she was albuminuric and the bleeding salutary. The uterus was in good position and of a size and of a consistency normal to the puerperium. Thirty-six hours later I was called, as the patient could not pass urine and was in great pain. The catheter withdrew about a pint and a half of urine. Thereafter the bowels, which had been locked up despite a large dose of black draught acted freely, and a clot, which the friends took to be the after-birth, came away. Later the patient again passed water naturally. Shears, in his *Obstetrics*, warns his readers about the danger of retention of lochia if a patient too long lies on her back. In this case the oozing blood accumulated (presumably—I did not examine per vaginam) and formed a massive clot in the upper vagina, hence the retention of urine.

CINEMATOGRAPH FILMS AND CUSTOMS EXAMINATION.

MESSRS. KODAK, who have arranged to illustrate certain of the papers to be read at the forthcoming meeting of the British Medical Association in Winnipeg, write: When cinematograph film subjects, cinematograph apparatus, or photographic apparatus which is dutiable in this country are taken abroad for temporary use, and will ultimately be brought back to Great Britain by the owner, it is advisable to submit such material to an examination by a Customs officer, who, in most cases, will issue a form stating that the dutiable articles are to be re-admitted free of duty at a specified port of entry within a stated period. Sufficient time should be allowed for the necessary formalities to be complied with before embarking.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals will be found at pages 35, 36, 38, 39, 42, 43, and 44 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *104*.

NATURALLY RICH

IN VITAMIN "D"

A "RESURRECTION"

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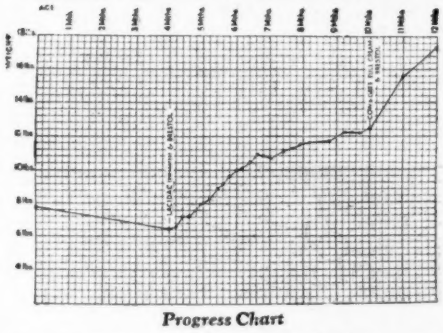
.....GUILDFORD
30/6/30

"Baby Hook, came under my care shortly after birth suffering with marasmus following whooping cough. Broncho-pneumonia developed and was with great difficulty cleared up, leaving the child in a very low condition. Feeding proved a difficult problem, several things were tried without beneficial results. The results with Cow & Gate were truly wonderful, indeed it is a case of 'a resurrection.'"

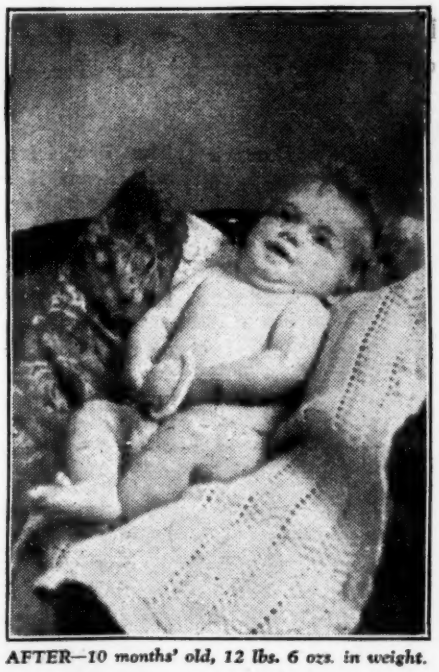
(Signed).....M.B.Ch.B.

Lacidac (separated) and Brestol, the Cow & Gate Humanised Cream, were used in the early days of treatment. Cow & Gate Full Cream and Brestol being used subsequently.

BEFORE—4 months' old, 6 lbs. 9 ozs. in weight.



Progress Chart



AFTER—10 months' old, 12 lbs. 6 ozs. in weight.

June 1930. Baby Hook has now won a prize in a Baby Competition!

Write for literature and clinical samples of Lacidac and Brestol.

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MANUFACTURERS OF THE Cow & Gate MilkFood CELEBRATED COW & GATE MILK FOOD

Support HOME Agriculture—Cow & Gate Products are all made from ENGLISH MILK.

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BILIARY STASIS AND GALL-BLADDER DISEASE

It is stated that ten per cent. of our entire adult population suffer from gall-stones. As gall-stones, presumably, always follow infective inflammations, cholecystitis must be even more common. The relative frequency with which the gall-bladder is infected, on the one hand, by the bile received from a liver whose detoxicating capacity has been lowered, and, on the other hand, directly by the blood supplied through the cystic artery, is not determined; but, in either case, biliary stasis is a prominent aetiological factor in actual gall-bladder disease. The importance of promoting more active intestinal peristalsis and a hastened biliary flow is therefore obvious. Through the force of osmosis, the flow of bile into the intestine may, as the duodenal tube has revealed, be stimulated by suitable saline draughts, of which Eno's "Fruit Salt" is perhaps the most agreeable and most generally useful. It is suggested that many early cases of cholecystitis—apt to be cursorily dismissed with the vague diagnosis "dyspepsia"—might be arrested by such simple means as increased exercise and regular morning draughts of Eno's "Fruit Salt."

Eno is chemically pure, and free from all trace of the nauseous mineral sulphates—Glauber and Epsom. It contains no sugar or artificial flavouring.

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The Proprietors of ENO's "Fruit Salt" will deem it a privilege to send to any member of the Medical Profession a copy of the latest of their series of "Medical Reminders"—with or without a bottle of their preparation as desired. "The Doctor's Emergency Reminder" summarises briefly a few points in connection with the treatment of poisoning and various other emergency cases. It is bound in black morocco limp to conform to the style of the previous publications in this series.

J. C. ENO, LTD., 160, Piccadilly, London, W.1.

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